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The Objectification Equation: How Objectifying Experiences Add Up to Subtract Women and Girls From Pursuing STEM

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THE OBJECTIFICATION EQUATION: HOW OBJECTIFYING EXPERIENCES ADD UP TO SUBTRACT WOMEN AND GIRLS FROM PURSUING STEM

by

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THE OBJECTIFICATION EQUATION: HOW OBJECTIFYING EXPERIENCES ADD UP TO SUBTRACT WOMEN AND GIRLS FROM PURSUING STEM

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Women have long been underrepresented within science, technology, engineering, and mathematics (STEM) domains. The present work proposed a novel integration of objectification theory (Fredrickson & Roberts, 1997) and the social cognitive theory of agency (Bandura, 1989) to explain why few young women pursue STEM educational goals. A pair of complementary in-lab and ecological momentary assessment studies with a female college student sample (Study 1) and female high school student sample (Study 2) tested the proposed model and examined the relations between objectifying experiences, self-objectification, and goals as they occurred in the moment using a smartphone application. As hypothesized, more experiences of objectification predicted more same day self-objectification for college women and high school girls. Also consistent with hypotheses, college women were less likely to have a STEM educational goal on a day they engaged in high levels of self-objectification, though this effect did not emerge for high school girls. More experiences of objectification and higher levels of self-objectification in a day predicted a greater likelihood of having a feminine goal (i.e., relating to appearance, romantic relationships, or housework) that day for college women, but not high school girls. Inconsistent with hypotheses, daily objectification did not directly predict daily STEM educational goals for either sample. Overall, the current work suggests that experiences of objectification

communicate powerful messages that shape women's and girls' self-perceptions and what goals young women should pursue. Discussion centers on the possibility of the current work to inform future interventions designed to increase the presence of young women in STEM and other male-dominated domains.

Dedication

To Jake, for all the love you put into supporting and encouraging me.

And to all the women in my life who have shaped me into the woman I am today.

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"It's better to know how to learn than to know." – Dr. Suess

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Chapter 1: Introduction

Despite recent efforts to increase the number of girls and women in science, technology, engineering, and math (STEM) fields, women are still underrepresented. Although women comprise about half of the world's population, and half of the U.S. workforce, less than a quarter of the workers within STEM fields are women (Lacey & Wright, 2009; National Science Board, 2010; Vilorio, Bureau of Labor Statistics, 2014). This gender discrepancy affects women personally and society more generally; on a person level, women are inadvertently opting out of faster growing and higher paying job opportunities (Carnevale, Strohl, & Melton, Center on Education and the Workforce, 2011; Fayer, Lacey, & Watson, Bureau of Labor Statistics, 2017) and at a global level, our country's ability to tap into the potential of our entire workforce is significantly impaired. Importantly, young women may be opting out of STEM fields as early as 6th grade (Burke & Mattis, 2007; VanLeuvan, 2004), implying the need for intervention within the primary and secondary school years. Previous research has identified institutional (e.g., lack of feminine role models, classroom climate; Marx & Roman, 2002), interpersonal (e.g., parental attitudes, stereotype threat; Spencer, Steele, & Quinn 1999; Yee & Eccles, 1988), and personal (e.g., attitudes, values; Diekman, Brown, Johnston, & Clark, 2010) barriers to girls' STEM participation (Wyer, 2003).

While women's barriers to STEM involvement are typically examined independently, I argue that a combination of interpersonal and personal barriers stemming from girls and women living in a society in which their bodies are treated as if they belong to others more than themselves, interact to decrease young women's STEM pursuit. The current work proposes a model of young women's STEM pursuit that

suggests that objectifying experiences add up to subtract young women from pursuing STEM domains. In particular, objectification targeted at young women and girls is theorized to influence self-objectification, undermining agency and self-efficacy, leading girls with highly internalized feminine ideals to adjust their goals away from STEM and academic goals and toward goals better aligned with feminine ideals deemed appropriate by society.

Women in STEM

Ideas surrounding why girls and women are underrepresented in STEM have evolved over time (for a review see Kanny, Sax, & Riggers-Piehl, 2014). At the outset of addressing the disproportion of women in STEM, it was first assumed that women avoided STEM fields because of gender differences in math and science ability. In comparison to men, women were previously thought to lag behind in math and science domains; however, research has since revealed that this difference between the sexes is negligible (Hyde, Lindberg, Linn, Ellis, & Williams, 2008). Although sex differences in abilities are still considered by some to play an important role in women's STEM participation, the introduction of the leaky pipeline metaphor changed the way in which researchers thought about women's STEM involvement (Alper, 1993). According to the leaky pipeline metaphor, women are underrepresented within STEM domains because, of the few women who pursue STEM domains, they are more likely than their male colleagues to leave STEM fields at multiple time points, from the beginning of college through obtaining a career. Thus, women who initially pursue STEM, metaphorically drip out of STEM pursuit as their education and careers advance.

A problem of pursuit. A recent retrospective analysis examining the degrees and careers sought and held by men and women within STEM fields provides evidence that the leaky pipeline was responsible for the STEM gender disparity during the 1960s and 1970s (Miller & Wai, 2015). During this time period the persistence rates of those holding a STEM bachelor's degree later achieving a STEM Ph.D. significantly differed between men and women, with men demonstrating greater persistence in STEM than women. Yet, this analysis also illuminated how this persistence gap closed in the 1990s. Men continued to pursue STEM at similar rates as years past and were still more likely to obtain a STEM Ph.D. than women. In recent years women entering in STEM are more likely to earn a Ph.D. than in years past, but women earn these degrees less than men because fewer women pursue STEM bachelor's degrees than men; thus, the difference is due to pursuit, not persistence.

In line with the leaky pipeline metaphor, the analysis by Miller and Wai (2015) suggests that the gender disparity within STEM fields may have once been due to differences in retention rates; however, current trends indicate other causes for women's underrepresentation (Miller & Wai, 2015). Longitudinal data on students' pursuit of educational domains also finds evidence against an issue of persistence. In particular, although high school girls who intended to pursue STEM fields had strong persistence throughout their pursuit, girls were less likely than boys to report intentions to pursue STEM fields once in college (Ma, 2011). Together, these studies suggest women's underrepresentation in STEM fields is not an issue of persistence, but instead an issue of young women's intention to pursue STEM domains prior to entering college. With fewer women pursuing STEM bachelor's degrees, this work reveals that women are dropping

out of the STEM pipeline before they truly enter it—in high school or early in their college careers. Previous attempts to explain the gender disparity in STEM have primarily focused on why women in STEM opt out, but if women are persisting at higher rates than ever before, now may be an important time to change focus on the issue and examine why young women and girls do not pursue STEM fields prior to entering the pipeline.

Theoretical Framework

Relying on a novel integration of objectification theory (Fredrickson & Roberts, 1997) and the social cognitive theory of agency (Bandura, 1989), I propose a model (see Figure 1.1) to explain why so few young women pursue STEM. Objectifying experiences are theorized to increase self-objectification, particularly when women "buy into" these objectifying experiences and perceive them as positive occurrences. Self-objectification is then theorized to decrease pursuit of STEM domains through two pathways, decreasing self-efficacy through performance and agency decrements. Decreased self-efficacy is then theorized to lead young women to reflect on and adapt their current goals. Due to the incongruity between STEM domains and feminine ideals, girls who have highly internalized feminine ideals learned through stereotypes and cultural standards are theorized to decrease STEM pursuit in comparison to girls who have not internalized feminine ideals. As a caveat, although this model would likely not be specific to young women and most likely apply to women at various points in their lives (e.g., in the workplace), the current work focuses on the process for young women (i.e., high school and college students) who are arguably at the greatest likelihood for both internalizing

cultural feminine ideals and opting out of STEM domains very early in their academic careers.

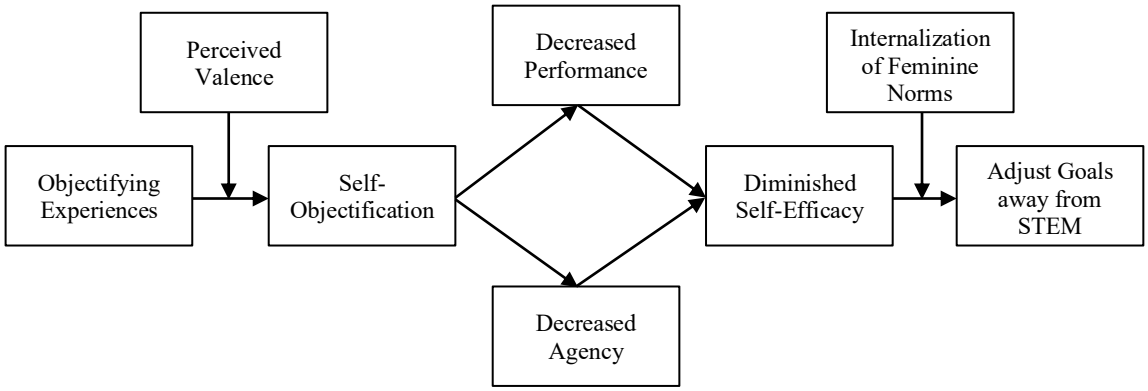

Figure 1.1. Conceptual diagram of the proposed model of the indirect effect of self-objectification on STEM pursuit for young women.

Importantly, prior to their teenage years, boys and girls do not differ in their interest in pursuing STEM careers. Reports examining boys' and girls' ideas for potential careers indicate that 74% of teenage girls are interested in STEM field careers (Modi, Schoenberg, & Salmond, 2012); however, only about 15% of young women in college pursue STEM (NRCCUA, 2013). According to a longitudinal analysis of young students' career path interests, a significant drop of interest in STEM commonly occurs for girls between seventh and twelfth grade (Burke & Mattis, 2007; VanLeuvan, 2004).

Sexual Objectification

It is during this time in their lives that young girls also begin to experience changes in the types of experiences they encounter with others, with the most apparent changes occurring due to puberty. As young women's bodies become reproductively mature, the way in which young women interact with and experience the world dramatically changes (Brooks-Gunn & Petersen, 1984); the sexualized attention they receive significantly increases with greater focus placed on their bodies and appearance

than ever before. These experiences that narrowly focus on women and girls' appearance, bodies, or sex appeal to exclusion of other attributes (e.g., intelligence) are known as sexual objectification (Bartky, 1990). Prior to this point in their lives, young girls are exposed to this commonplace objectification of women in the media on a regular basis (APA, Task Force on the Sexualization of Girls, 2010), but it is during adolescence that these experiences become their own (Leaper & Brown, 2008; Rudman & Fairchild, 2008). Objectification can manifest as overt harassment, although it most often emerges in subtle and seemingly benign behaviors such as sexualized gazing and appearance commentary (Fredrickson & Roberts, 1997; Rudman & Fairchild, 2008). By the time girls enter middle school, being objectified is commonplace; middle and high school-aged girls report experiencing both overt instances of sexual harassment (AAUW, 2001; Harned, 2000; Hill & Kearl, 2011; Larkin & Rice, 2005; Lindberg, Grabe, & Hyde, 2007), and more subtle experiences of sexual objectification, including "fat talk" (Nichter, 2000), and sexualized or appearance-focused commentary (Menzel, Mayhew, Thompson, & Brannick, 2009; Shute, Owens, & Slee, 2008) from boys and men, as well as girls and women.

Despite the fact that objectifying behaviors can be seemingly subtle, the consequences of objectifying experiences are anything but benign. According to objectification theory, reoccurring experiences of objectification lead to myriad negative outcomes, in particular undermining mental health (Fredrickson & Roberts, 1997). Notably, objectification theory suggests that the path by which these negative consequences occur is through increasing women's likelihood to self-objectify—internalizing a third person perspective of oneself and to see oneself as an object to be

externally evaluated instead of a person with external and internal attributes (Fredrickson & Roberts, 1997). Since the debut of objectification theory, research examining women's experiences has supported this detrimental link with objectifying experiences increasing women's body shame, eating disorders, and depression (for a review Roberts, Calogero, & Gervais, 2018). Research suggests that the adverse effects of objectification begin early on; appearance conversations with friends are predictive of body dissatisfaction among girls (Clarke, Murnen, & Smolak, 2010; Lawler & Nixon, 2011; Stice, Maxfield, & Wells, 2003), and experiences of sexual harassment in 5th grade are predictive of disordered eating symptoms in 9th grade as mediated by body surveillance (a common manifestation of self-objectification; Petersen & Hyde, 2013).

Objectification and goals. Although no known work has directly examined the influence sexually objectifying experiences have on goal-setting, some work suggests these experiences could negatively impact STEM educational goals. According to objectification theory (Fredrickson & Roberts, 1997), self-objectification as a result of objectifying experiences is theorized to reduce peak motivational states. In particular, objectification theory suggests flow – a prime motivational source we rely on when our mind or body is stretched to capacity in order to accomplish tasks that are difficult but worthwhile (Csikszentmihalyi, 1990; Csikszentmihalyi & Figurski, 1982) – is impacted by objectification. Empirical work has supported this notion, finding that self-objectification resulting from objectifying experiences manifests in habitual body surveillance, which adversely impacts women's feelings of flow (Guizzo & Cadinu, 2017). This change in focus, from experiencing to monitoring, is thought to interrupt women's flow by redirecting a woman's conscious attention away from a task or goal by

calling attention to her body (Fredrickson & Roberts, 1997; Quinn, Kallen, Twenge, & Fredrickson, 2006). With limited flow, young women may be less likely to be able to set and achieve goals (Csikszentmihalyi, 1997).

Not only does interrupted flow influence women's ability to set and achieve goals, but it may also influence the types of goals they pursue. Given that objectified girls' and women's bodies are ever-present in their thoughts and concerns, it is possible that experiences of objectification may alter young women's goals to be more focused on their appearance or relationships, and less focused on competency or mastery-orientated tasks. Fredrickson and Roberts (1997) also suggest that given the societal expectations regarding women's looks, it may behoove girls and women to self-objectify; by becoming their own first surveyor and attempting to increase their attractiveness and sex appeal, they may be able to predict how they will be treated by others as well as increase positive treatment from others (although this is a fleeting, limited, and possibly quite detrimental form of power or social influence). This reasoning is also consistent with the suggestion that as a result of objectification, girls and women may develop more appearance-related goals in an effort to appeal to men and be acceptable to women, thereby gaining social and economic power. It is also possible that seeing oneself in relation to how other people see the self may increase women's relational goals.

At the same time, objectifying experiences may also decrease women's STEM and academic-related goals. Although we are able to have many goals at one point in time, activation of committed focal goals can inhibit alternative goals (Shah, Friedman, & Kruglanski, 2002). If objectification increases women's focus on their appearance and relationships, they may prioritize appearance and relational goals over other goals (e.g.,

academic goals in general, or STEM educational goals in particular). Furthermore, increases in relational goals may be problematic for concomitant increases in STEM educational goals. In a study examining women's romantic and educational goals, for example, women's romantic goals were seen as conflicting with STEM domains (Park, Young, Troisi, & Pinkus, 2011). The model proposed in this project attempts to examine the potential link between objectification and young women's goals.

Objectification and self-objectification. Importantly, the self-objectification that results from objectifying experiences may be particularly pronounced for some girls and women. Although previous research has suggested that individual differences in self-concept influence whether objectifying experiences lead to self-objectification (Crocker, Luhtanen, Blaine, & Broadnax, 1994), more recent research seems to suggest that women's perceptions also play an important role in whether objectification results in self-objectification. For example, in a study examining the effect of frequency and impact of both critical and complimentary objectifying commentary, the impact, but not the frequency of objectifying experiences was linked to self-objectification. Specifically, women who reported feeling good about receiving complimentary objectifying commentary were more likely to experience increases in self-objectification than women who did not report feeling good about these comments (Calogero, Herbozo, & Thompson, 2009). The link between more positive perceptions of objectification and self-objectification may be due in part to the system justifying nature of more complimentary forms of sexism; exposure to more complimentary forms of sexism increases women's system justification and self-objectification (Calogero & Jost, 2011). Yet, given the pervasive nature of objectification within women and girls' lives (Fredrickson & Roberts,

1997), it is possible that young women may internalize these experiences and engage in more self-objectification after interpersonal experiences of objectification regardless of perceptions. As an exploratory investigation, the current work examined the relation between young women and girls' perceptions of objectification in predicting engagement in self-objectification.

Self-objectification, performance, and agency. Although objectification research has focused primarily on mental health consequences (see Roberts et al., 2018 for a review), recent efforts have expanded our understanding of objectification on women's cognitive and behavioral outcomes. Notably, research has revealed a link between self-objectification and cognitive functioning and performance (APA, Task Force on the Sexualization of Girls, 2010). Women's change in focus from experiencing to monitoring during self-objectification redirects conscious attention away from performance by calling attention to her body (Fredrickson & Roberts, 1997; Quinn et al., 2006). The disruption of flow that occurs during self-objectification is commonly measured through the manifestation in performance decrements on tests requiring cognitive capacity. In particular, objectifying experiences and self-objectification decreases women's general cognitive functioning (Gapinski, Brownell, & LaFrance, 2003), and math performance (Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998; Gervais, Vescio, & Allen, 2011; Hebl, King, & Lin, 2004)—an essential skill within many STEM domains, because of disruptions in flow (Guizzo & Cadinu, 2017). Links have also been made between self-objectification and cognitive load, suggesting that when women engage in self-objectification, they expend additional mental effort while trying to complete tasks, ultimately disrupting performance (Gay & Castano, 2010;

Quinn et al., 2006). Young women's STEM pursuit may be at greatest risk because STEM domains rely heavily on cognitive skills. Moreover, math skills that are adversely impacted by engaging in self-objectification are deemed components of brilliance, a feature stereotyped to be essential in STEM success (Leslie, Cimpian, Meyer, & Freeland, 2015).

Recent work also has revealed a link between self-objectification and women's agentic behaviors. Agency is the awareness that as an individual, we can exert influence on the world around us (Bandura, 1989); however, since objects do not act, women seen as objects are seen as lacking in agency. Perpetrators of objectification perceive their targets as more like objects (Bernard, Gervais, Allen, Campomizzi, & Klein, 2012) and less like human beings, with low levels of agency (Cikara, Eberhardt, & Fiske, 2011; Loughnan et al., 2010) and fewer complex mental states (Loughnan et al., 2010). Unfortunately, this effect has also been extended to young girls; prepubescent girls dressed in sexualized attire are attributed lower mental capacity and lower moral status than non-sexualized girls (Holland & Haslam, 2016). Although these perceptions seem like mere ascriptions, less agentic perceptions of objectified women can act as a self-fulfilling prophecy. Women who are sexually objectified are not only perceived as less agentic, but also personally experience actual decreases in agency. Although no known research has examined the influence of self-objectification on agency directed toward academic goals, research suggests that women who self-objectify experience decreases in social and behavioral agency (Calogero, 2013; Saguy, Quinn, Dovidio, & Pratto, 2010).

Women's agency may be at greatest risk within STEM domains. Women frequently experience instances of sexual harassment in the workplace (Fitzgerald, 1993),

and this problem appears to be even more persistent within STEM domains (The National Academies of Sciences, Engineering, Medicine, 2018). The gender disparity within male-dominated STEM fields may increase the frequency with which women are targets of objectification (Fiske, 1993; Gutek, 1985). According to role congruity theory, women are seen as less able than men to fulfill leadership and other male-dominated positions because women hold communal qualities opposed to the agentic qualities thought to be required for such roles (Eagly & Karau, 2002; Powell, Butterfield, & Parent, 2002; Schein, 2001). Violating prescribed norms can result in backlash acted out through sexual harassment (Berdahl, 2007; Burgess & Borgida, 1999; Leskinen, Rabelo, & Cortina, 2015). Young women interested in STEM may be considered less stereotypically feminine based on their gender role incongruity, which for girls, has been linked to increased victimization of sexism from male peers (Leaper & Brown, 2008). These male-dominated fields may also increase young women's experiences of objectification and resulting self-objectification by demonstrating to women their lack of control and power. For women interested in male-dominated domains, lower interest is mediated by anticipating less power or less agency over situations within these fields, supporting the link between less agency and decreased STEM pursuit (Chen & Moons, 2015).

Self-Efficacy

Self-efficacy stems from our belief that we can successfully execute behaviors necessary to produce specific outcomes (Bandura, 1977). Importantly, self-efficacy has been demonstrated as an important mechanism for setting and persevering toward goals (for a review see Holden, Moncher, Schinke, & Barker, 1990). For instance, a study examining young students' self-efficacy beliefs and reading achievement found that more

self-efficacy beliefs significantly increased students' academic goals and achievement (Zimmerman, Bandura, & Martinez-Pons, 1992). Once goals are set, action toward those goals occurs with the use of our agency. According to the social cognitive theory of agency (Bandura, 1989), agency is enacted in a cyclical pattern in which goals are developed alongside actions plans to achieve these goals, and post-action reflection on performance allows for the adjustment of goals as necessary. Reflections on actions and performance influence feelings of self-efficacy. To increase the likelihood of successfully reaching goals, goals are typically adjusted toward realms in which our self-efficacy is high—when we perceive that we have the ability to attain expected outcomes (Bandura, 1989). Grade school students, for example, report feelings of competence in domains in which they are high achievers and demonstrate interest in domains where they perceive personal strength (Denissen, Zarrett, & Eccles, 2007). Considering self-efficacy of young women may assist in understanding factors influencing STEM educational goal pursuit.

Self-efficacy and STEM educational goals. Understanding young women's STEM self-efficacy prior to entering college is essential; self-efficacy within STEM is a strong predictor of whether high school students will decide to pursue a STEM degree in college (Heilbronner, 2011). For example, when young women's self-efficacy in STEM domains is increased, interest in STEM, and motivation to pursue STEM, is also enhanced (Stout, Dasgupta, Hunsinger, & McManus, 2011). In a study examining college students' STEM self-efficacy and interest in a STEM course at the beginning, middle, and end of the semester, in comparison to their male peers, female students reported lower STEM self-efficacy and interest, even when controlling for actual course

performance (Hardin & Longhurst, 2016). These results suggest that compared to their male peers, female students have less self-efficacy within STEM domains at baseline.

Furthermore, for young women entering STEM domains in college, they report high academic skills in science, but lower academic self-efficacy compared to young men entering STEM domains (MacPhee, Farro, & Canetto, 2013). In other words, college women in STEM suffer from less self-efficacy specifically in STEM, but they feel efficacious in college more generally. The findings that female students pursuing STEM have lower academic self-efficacy than their male peers suggest that it is not general self-efficacy that deters girls from pursuing STEM, but self-efficacy specifically within STEM domains. Objectifying experiences more common in STEM and male-dominated domains may be one reason for young women's decreased self-efficacy. In a study examining the influence of self-objectification on performance and self-efficacy, women who were more (vs. less) likely to self-objectify after hearing fat-talk (e.g., "I look totally fat in this!") felt less capable, purposeful, and self-efficacious (Gapinski et al., 2003). The model proposed in this project hypothesizes that self-efficacy is influenced by both performance and agency decrements as a result of self-objectification.

Goal Adjustment

Consistent with the social cognitive theory of agency (Bandura, 1989), changes in performance and agency are theorized to influence self-efficacy, ultimately resulting in goal reflection. According to the current model of STEM pursuit, young women adjust their goals away from STEM domains if they have internalized feminine ideals. Stereotypes surrounding gender roles and ability have been heavily researched as factors affecting women and girls' interest in STEM. Previous research suggests that social roles

intersect with goal pursuit by influencing the type of goals we set out to achieve, the prioritization of these goals, and which goals we shy away from (Diekman & Steinberg, 2013). Importantly, STEM domains like math, are implicitly perceived as male (Nosek, Banaji, & Greenwald, 2002), suggesting that women internalizing feminine ideals may avoid pursuing STEM domains because they are counter-stereotypical for their gender.

During their young adulthood years, young women may be most likely to internalize feminine ideals because it is during this time that they are navigating changes in both their identity and pubertal status (Else-Quest & Hyde, 2009). Internalization of feminine norms and conventions is perceived to be a central rite of passage for young women (Eder, Evans, & Parker, 1995; Lerner & Steinberg, 2009; Wiseman, 2002). Children actively construct gender schemas from explicit and implicit norms of gender roles defining what is masculine versus what is feminine (Bem, 1981). It is with these gender schemas in mind that youth acquire their self-concept and behaviors (Ruble, Martin, & Berenbaum, 2006). Young women vary in the degree to which they endorse gender-related prescriptive, proscriptive, and descriptive norms or feminine gender roles (Signorella, 1987; Signorella, Bigler, & Liben, 1993); they act as active agents in choosing and interpreting the lessons about feminine ideals from the media and personal interactions. While some young women challenge or counter feminine ideals, as is more common amongst African-American girls compared to their White peers (Taylor, Gilligan, & Sullivan, 1995), many young women ultimately internalize feminine ideals. Although femininity is a complex trait that prescribes what it means to be a woman, two key foundations to femininity are encapsulated in communality and beauty.

Internalization of communality. Communal goals, those aimed at helping and or working with others, are both prescriptive and descriptive for women, who typically hold more communal goals compared to mastery orientated goals (Diekman & Steinberg, 2013). Although STEM goals can fulfill communal goals (e.g., working with others on a science team, curing diseases), women and girls do not commonly perceive STEM domains in this light. For instance, STEM and other male-dominated domains are stereotypically perceived as requiring extensive social isolation (Barbercheck, 2001). In part due to these stereotypes, greater endorsement of communal goals has been linked to decreased interest in STEM pursuit (Diekman et al., 2010). For example, a recent qualitative study revealed that of women once interested in STEM, familial goals were a common factor in leaving STEM (Banerjee, Schenke, Lam, & Eccles, 2018). Unlike adults, teens report perceiving STEM domains as both fulfilling (i.e., helping others) and obstructing (i.e., taking time away from family and friends) communal goals (Shoffner, Newsome, Minton, & Wachter, 2015). Yet, despite teens' perceptions of some congruency between STEM and communal goals, young women still avoid STEM domains.

While these stereotypic gendered goals are merely prescriptive, research suggests that young women rely on these stereotypes when developing their own goals. For example, messages conveyed by parents regarding interests and expectations have been found to decrease young women's interest and self-efficacy in STEM domains (Tennenbaum & Leaper, 2013). Furthermore, although college-aged women report relying on career information (e.g., salary) when choosing a career path, high school-aged young women report relying heavily on career and gender role goal fit (Barth, Guadagno,

Rice, Eno, & Minney, 2015), suggesting high school girls may be opting out of STEM domains based on gender roles prior to entering college. While seemingly less important, college women also consider career paths based on gender appropriateness; in a diary study conducted with female undergraduate STEM majors in both STEM and non-STEM courses, for example, lower self-efficacy in STEM decreased STEM interest and increased feelings of belonging in more gender role appropriate classes (e.g., liberal arts; Thoman, Arizaga, Smith, Story, & Soncuya, 2014).

Like communal goals focused on others, women are taught from an early age to internalize romantic goals. Given men's agency and women's communality, men are perceived as higher in status than women, and thus, more likely to be leaders and make more money than women (Eagly, Wood, Johannesen-Schmidt, 2004). Women therefore are taught to rely on men for economic resources and social status, implying that women need to attract men (Glick & Fiske, 1996). Because of this, women are taught from an early age to internalize a desire to be romantically desirable (Collins-Standley, Gan, Yu, & Zillmann, 1996; Rudman & Glick, 2008; Sanchez & Kwang, 2007).

For women, romantic goals are commonly perceived as in opposition to intellectual goals. In a study examining perceptions of intelligence, for example, participants expected women with exceptionally high IQs to experience more romantic relationship problems than men with similar IQ levels (Szymanowicz & Furnham, 2011). Experimental examinations of women's romantic goals reveal that the stereotype may unconsciously affect women; women implicitly, but not explicitly, associate romantic fantasies with decreased interest in personal power and educational goals (Rudman & Heppen, 2003). Moreover, activation of goals to be romantically desirable decrease

women's STEM goals specifically (Park, Young, Eastwick, Troisi, & Streamer, 2015). In daily diary studies, women's romantic goals were related to less positive attitudes and preferences for STEM domains, with the effects extending into the following day suggesting a lasting effect of these goals on STEM pursuit (Park et al., 2011). Moreover, benevolent sexist attitudes that are highly related to preferences for committed, heterosexual romantic relationships (Travaglia, Overall, & Sibley, 2009), are heavily endorsed within STEM courses, and women's endorsement of these beliefs is related to lower STEM major intentions and STEM successes (Kuchynka et al., 2018). Thus, not only do STEM domains conflict with gender roles for women, but objectifying behaviors may remind women of the importance of romantic goals, leading young women to adjust goals toward gender congruent communal, romantic domains and away from gender incongruent STEM domains.

Internalization of beauty. In addition to communal goals, attractiveness goals may undermine young women's interest in STEM. The patriarchal society women live in suggests it is beneficial for women to attract men through their sex appeal, and therefore women work to attract men by engaging in self-sexualizing behaviors (Liss, Erchull, & Ramsey, 2011; Smolak, Murnen, & Myers, 2014). Women are taught the advantages of being sexy from an early age, and thus self-sexualization seems natural and normal to many female adolescents (Levine & Kilbourne, 2008). In particular, girls are taught that being sexually attractive to men is of utmost importance to women, and that a particular (unattainable) body type (e.g., thin, well-proportioned) is deemed sexually attractive (Levine & Murnen, 2009).

Despite the focus of beauty to attract men, other women contribute to women's objectifying experiences. Although they do so to a lesser extent than men, women also objectify other women (Strelan & Hargreaves, 2005). Men's objectification of women is often times subtle (e.g., body gaze), but women's objectification of other women may be even more subtle (e.g., construction of women as objects within dialogue e.g., identifying a woman as "the blonde chick who isn't really blonde", Bearman, Korobov, & Thorne, 2009; fat-talk, Salk, Engeln-Maddox, 2012), nevertheless adding to women's experiences of objectification. Women objectify other women due self-objectification (Strelan & Hargreaves, 2005) and social comparison (Gervais, Bernard, & Riemer, 2015; Linder, Tantleff-Dunn, & Jentsch, 2012). Thus, women may objectify other women to see how they "measure up" in regard to the cultural beauty norms.

Young women are encouraged to accept a view of sex that legitimizes their objectification through many sources (Paul, 2005; Zurbiggen & Roberts 2013). The media plays a significant role in young women's internalization of sexualization; with limited parental monitoring and restrictions, girls' exposure to sexualized media is greater than ever before (Bocking & Bocking, 2009). Media targeted specifically toward adolescents has an overwhelming presence of sexualized women (APA, Task Force on the Sexualization of Girls, 2010), young women valued specifically for their physical attractiveness (Kirsch & Murnen, 2015), and heterosexual scripts (i.e., men are uncontrollably driven to sex and women are the gatekeepers of men's sexual desire; Kim et al., 2007).

Young women's exposure to the media's sexualization of women influences their attitudes toward, and desire to, participate in restrictive behaviors to increase

attractiveness (e.g., dieting, breast augmentation surgery; Dittmar, Halliwell, & Ive, 2006; Harrison & Hefner, 2008). Young women and girls also experience body and appearance dissatisfaction (Dohnt & Tiggemann, 2006; Latzer, Spivak-Lavi, & Katz, 2015; Murnen, Smolak, Mills, & Good, 2003), increased self-objectification (Tiggemann & Slater, 2015), and beliefs that women are sex objects (Peter & Valkenburg, 2007; Ward, 2002; Ward & Friedman, 2006) due to media exposure.

Beyond the media, parents (Nichter, 2000) and teachers (Rolon-Dow, 2004) communicate their own appearance and sexualizing standards to young women and girls. During adolescence, the opinions of peers become more powerful than those of authority figures. It is during this developmental period that appearance-based conversations become the norm for young women (Nicheter, 2000), with these conversations predicting body dissatisfaction (Lawler & Nixon, 2011) and self-objectification (Tiggemann & Slater, 2015). Even more so, peers' desire for thinness predicts young women's self-esteem one year later, implying the severity of internalized sexualization and the power of peer influence (Dohnt & Tiggemann, 2006).

Although these messages are simply societal expectations, many young women come to internalize them. Research reveals that girls attribute more positive traits to thin dolls and negative traits to heavier dolls (Worobey & Worobey, 2014), and although 48% of 5-year old girls report they want to be larger, that number drops only a year later (17%), when the majority (47%) of 6-year old girls report wanting to be thinner (Dohnt & Tiggemann, 2006). About one third of young girls (aged 4-10) engage in at least one appearance-based behavior (e.g., wearing lip gloss; Tiggemann & Slater, 2014), and when given the opportunity to choose representations of themselves, many girls choose

thin over fat, and sexualized over non-sexualized representations, suggesting that girls internalize ideals society communicates to them (Harriger, Calogero, Witherington, & Smith, 2010; Starr & Ferguson, 2012).

Unfortunately, feminine appearance ideals may be at odds with pursuing STEM domains. For instance, in a study examining how appearance affected likelihood of being labeled a scientist, increases in the feminine appearance of female scientists decreased the likelihood others thought she was a scientist, implying that feminine appearance and STEM do not go together (Banchefsky, Wastfall, Park, & Judd, 2016). Moreover, the stereotypes regarding appearance within STEM domains could shape the way in which young women think of their own STEM pursuit and possible success. For instance, exposure to non-stereotypical STEM role models wearing fashionable clothing (e.g., v-neck t-shirt, flip flops) increased college women's perceived potential to succeed in STEM relative to STEM role models wearing stereotypical clothing of those in STEM fields (e.g., glasses, t-shirt with nerdy saying, socks with sandals) (Cheryan, Siy, Vichayapai, Drury, & Kim, 2011).

While counter-stereotypic information increases women's perceived STEM abilities, there may be a limit in the extent to which women perceive STEM success as compatible with feminine stereotypes. For example, exposure to feminine STEM role models (e.g., wearing pink clothing and makeup) relative to gender-neutral STEM role models (e.g., wearing dark clothing and glasses) instead reduces STEM interest and perceived STEM success of middle school girls (Betz & Sekaquaptewa, 2012). Together, these studies suggest that young women may perceive difficulties in balancing STEM success with adhering to feminine appearance ideals.

Importantly, these appearance ideals are difficult *not* to internalize; women report they aspire to achieve feminine appearance ideals because they seek the psychological (e.g., happiness), social (e.g., well-liked), and practical (e.g., wealth) rewards stereotypically associated with being beautiful, despite the potential of known negative social (e.g., stereotyped as dumb) and personality (e.g., becoming more vain and less focused on education) consequences (Engeln-Maddox, 2006). Although young women do acknowledge potential costs to internalizing feminine appearance norms, many women perceive the benefits to outweigh these costs. In adolescence, young women typically reach cognitive maturity sanctioning a sophisticated understanding of others' perspectives (Choudhury, Blakemore, & Charman, 2006), and thus the cultural value of their sexual attractiveness. By middle school, sexualization is commonly internalized, and as a result, self-objectification is high (Lindberg et al., 2007).

Together, this literature reveals that young women are taught to prioritize communal and appearance-related goals. The patriarchal society women live in actually provides women with a number of benefits for ascribing feminine gender roles (e.g., greater warmth toward housewives, Fiske, Cuddy, Glick, & Xu, 2002; feelings of empowerment, Liss et al., 2011). Yet, the acceptance of sexualizing attitudes and behaviors come at a cost not commonly advertised. According to objectification theory, sexualization leads women to internalize the sexualized gaze (Fredrickson & Roberts, 1997), which has been found to lead girls to wear more revealing clothing (McKenney& Bigler, 2016), impair girls' cognitive and physical functioning (APA, Task Force on the Sexualization of Girls, 2010), decrease self- and body-esteem (Impett, Henson, Breines, Schooler, & Tolman, 2011; Murnen et al., 2003), and accept gender based social

hierarchy (Calogero, 2013). While ascribing to feminine norms is not inherently problematic for young women, the incongruities between feminine gender roles and STEM suggest women and girls who pursue goals related to communality and appearance in attempts to meet cultural gendered expectations, may be less likely to also pursue STEM educational goals. Thus, internalized feminine norms are hypothesized to impede young women's STEM pursuit by increasing desire to pursue gender appropriate goals. Furthermore, acceptance and internalization of femininity may lay the groundwork for greater self-objectification, possibly increasing potential future experiences of objectification which influence subsequent self-objectification, performance, agency, and self-efficacy.

Current Work and Hypotheses

The purpose of the current work is to test a portion of the proposed model (Figure 1.1) that suggests women and girls' experiences of objectification indirectly decrease the likelihood of pursuing STEM goals through self-objectification and resulting decrements in performance, feelings of agency, and self-efficacy. Given that this is the first theory to make connections between objectification and goals, the current work begins to investigate these relations by examining a portion of the larger model (as seen in Figure 1.2). Specifically, the current work aimed to investigate the relation between experiencing objectification and self-objectification. While this link is well known (for a review see Roberts et al., 2018), little work has examined this relation as experiences and resulting self-objectification unfolds in-the-moment for women (c.f., Holland et al., 2016) and girls. The current use of ecological momentary assessment methodology allows for a deeper investigation of how daily objectification shapes women and girls' self-

objectification. Additionally, the current work examined the never before tested relations between objectification, self-objectification, and goal pursuit.

In line with the proposed model, objectification experiences are hypothesized to predict goals (Hypothesis 1). In particular, more objectifying experiences are hypothesized to be related to decreased STEM educational goal pursuit (Hypothesis 1a), increased stereotypical feminine goal pursuit (Hypothesis 1b), and increased stereotypical feminine academic goal pursuit (Hypothesis 1c). Moreover, the effect of objectification experiences on goals is hypothesized to be more pronounced for women and girls high in conformity to feminine norms (Hypothesis 1d). More experiences of objectification are also hypothesized to be related to increased levels of self-objectification (Hypothesis 2).[1]

Self-objectification is then hypothesized to predict goal adjustment (Hypothesis 3). In particular, more self-objectification is hypothesized to be related to decreased STEM educational goal pursuit (Hypothesis 3a), increased feminine goal pursuit (Hypothesis 3b), and increased stereotypical feminine academic related goal pursuit (Hypothesis 3c). Furthermore, the relation between self-objectification and goal adjustment is hypothesized to be moderated by feminine norms; while higher levels of self-objectification will predict less STEM educational goal pursuit as well as more stereotypical feminine academic and feminine goal pursuit, these effects will be particularly pronounced for women and girls who have internalized feminine norms (Hypothesis 3d).

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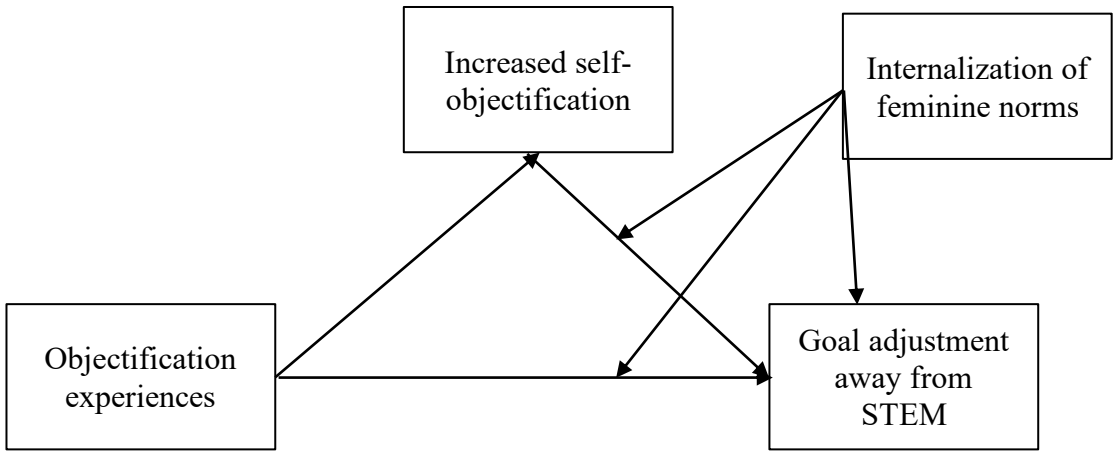
[1] The relationship between objectification and self-objectification was hypothesized to be moderated by perceived valence; while objectifying experiences were expected to cause more self-objectification, this effect was expected to be exacerbated with more positive perceptions (Calogero et al., 2009). The results did not provide any support for this finding, so this portion of the model has been removed in the sake of parsimony.

Finally, self-objectification is hypothesized to mediate the relation between objectification and goal adjustment with feminine norm internalization moderating the mediated model (Hypothesis 4). Specifically, goal adjustment away from STEM and toward stereotypical feminine academics and feminine domains will be greatest when young women who have internalized feminine norms self-objectify as a result of experiencing objectification.

These hypotheses were tested at both trait (through baseline measures collected via cross-sectional survey using path analyses) and state (through ecological momentary assessment repeated-measures surveys using multilevel modeling) levels to examine the relation between objectifying experiences and young women's goal pursuit in the long-term and in the moment. Although the full model also includes performance, agency, and self-efficacy, those components of the model were not be tested within the proposed studies.[2]

Figure 1.2. Conceptual diagram of the model portion tested in the current studies



[2] Exploratory measures were included in the study to assesses these possibilities. Descriptions of these measures and descriptive statistics can be found in the Supplemental Information document.

Chapter 2: Method

Many cross-sectional studies have examined the relations between objectification, self-objectification, and related negative outcomes as reported with retrospective surveys (Roberts et al., 2018). While valuable, these approaches suffer from recall biases and do not allow for causal interpretation.[3] Additionally, a plethora of work has previously examined the influence of objectification on women in the lab, allowing for causal interpretations, but these studies often lack external validity by creating artificial objectifying experiences and environments. Additionally, for practical purposes, experimental studies usually manipulate one objectification experience, and therefore it is difficult to determine how frequently women actually experience objectification, self-objectification, and a range of goals.

Ecological momentary assessments (EMAs), which were used in the present work, lend themselves well to capturing experiences as they occur in the moment within natural environments (Shiffman, Stone, & Hufford, 2008), thus reducing retrospective biases while increasing ecological validity. EMA is a type of data collection in which participants respond to repeated assessments over the course of a specified time frame while engaging with their natural surroundings. EMA provides both cross-sectional and longitudinal data, and thus causal inferences can still be made while retaining ecological

[3] Self-report measures can be problematic in that they bias responses in terms of retrospective recall (Cutler, Larsen, & Bruce, 1996; Redelmeier & Kahneman, 1996; Ross, 1989), autobiographical memory (Han, Leichtman, & Wang, 1998; Henry, Moffitt, Caspi, Langley, & Silva, 1994; Wang, 2001), and the use of heuristics in response patterns (Robinson & Clore, 2002; Schwartz, 1994, 1999; Tversky & Kahneman, 1973); however, given the timing of signal-contingent sampling, minimal room for recall bias exists. Asking women to identify and self-report objectifying experiences may have influenced the experiences participants pay attention to (Swim, Hyers, Cohen, & Ferguson, 2001); yet, it is unlikely that asking women to report on objectifying experiences leads women to experience more objectification. This point is returned to within the general discussion.

validity with EMA. Importantly, EMA allows for a within-person level of analysis, examining what happens in the moment, as well as a between-person level of analysis, examining fluctuations over time. The relation between objectifying experiences and goal pursuit was tested amongst female college students in Study 1, and female high school students in Study 2, using first self-reported trait and retrospective experiential measures collected in the lab, followed by an EMA portion of the study to collect self-reported experiences and goals as they occurred in real-time.

Study 1

Participants

Eighty-eight female undergraduate students were recruited to participate in "Project G.I.R.L. – Gaining Insight into Real Life". The sample size of the current study was based on previously conducted EMA studies examining the effects of experiencing and witnessing objectification on engaging in self-objectification (Holland, Koval, Stratemeyer, Thomson, & Haslam, 2016) and the effect of self-objectification on well-being (Breines, Crocker, & Garcia, 2008) that successfully conducted multilevel modeling analyses relying on a similar sample of 81 and 49 female participants, respectively. Moreover, statistical considerations suggest sample sizes over 50 reduce the likelihood of obtaining biased estimates when conducting multilevel modeling with a repeated measures research design that provides multiple assessments per participant (Maas & Hox, 2005).

To obtain a sample of students with various majors, participants were recruited across campus through fliers posted in university common areas (i.e., the library, the union, bulletin boards of class buildings) and advertisements shared by course instructors

across many different disciplines (e.g., chemistry, psychology, communications). Advertisements (see Appendix A) indicated that the study was conducted over the course of 2 weeks to examine everyday experiences, and that owning a smartphone was required to participate.[4] Interested participants contacted the researcher via email or phone. Following screening to ensure 1) female gender, 2) student status at the university, 3) current enrollment in at least one STEM course (i.e., physical science, mathematics, engineering, or technology), and 4) owning a smartphone on which to complete the study; eligible participants were scheduled for an in-lab session as part 1 of the study. Participants ranged in age from 18 to 29 (M = 20.26, SD = 1.89) and primarily identified as White (58, 65.9%), followed by Black or African American (16, 18.2%), Asian (9, 10.2%) or another racial or ethnic identity (5, 5.6%).

Reimbursement was contingent upon compliance with the EMA survey prompts; completing more of the EMA surveys resulted in a larger monetary reimbursement (as is common practice in studies relying on EMA data collection techniques; Hufford & Shields, 2002). Over the course of two weeks, participants were sent a total of 98 EMA surveys; a percentage of surveys completed was calculated for each participant to determine compensation. Participants who completed the in-lab portion of the study and a quarter of the surveys (24 surveys) received $15. Completing more of the EMA surveys increased the bonus participants received on top of the $15; completing 25-49% (25- 48 surveys) resulted in a $10 bonus, completing 50-59% (49-57 surveys) resulted in a $20

[4] Although the requirement of owning a smartphone was a potential limitation of this study design, a recent survey examining college students' technology use found that the majority of students (86%) own a smartphone device (Poll, 2015). While some interested students may have not contacted the researcher because they failed to meet this requirement, all interested participants were screened for having a smartphone, and no interested potential participants were turned away from the study for failing to meet this requirement.

bonus, completing 60-69% (58-67 surveys) resulted in a $30 bonus, completing 70-84% (68-82 surveys) resulted in a $35 bonus, and completing 85% or more (83-98 surveys) resulted in a $45. In sum, participants had the potential to earn between $15 and $60 depending on their survey completion rate. On average, participants completed 69 (*SD* = 16.45, range = 12 - 95), or 68% of the 98 surveys, and received an average compensation of $45 (*SD* = $12, range = $0 - $60). There was little attrition in the study; although there were some days in which participants did not complete any surveys (on days: 2, 3, 6, 7, 8, 12, 13 – 87 of 88 participants completed at least one survey and on days: 9, 10, 11, 14 – 85 of 88 participants completed at least one survey), only one participant stopped responding to surveys completely after day 13.

Materials

Trait measures baseline survey

Objectifying experiences. The frequency and perceptions of experienced interpersonal objectification were measured using the Interpersonal Sexual Objectification Scale (ISOS; adapted from Kozee, Tylka, Augustus-Horvath, & Denchik, 2007; Appendix B) and the Verbal Commentary on Physical Appearance Scale (VCOPAS; adapted from Herbozo & Thompson, 2006; Appendix C).

The ISOS measures how frequently women experience sexually objectifying behaviors in interpersonal interactions. This 16-item measure asks participants to indicate how frequently they experienced sexual objectifying behaviors in the past year using a 5-point Likert-type scale ranging from *never* to *almost always*. Specifically, the ISOS assesses frequency of experiencing body evaluations (e.g., How often have you felt like or known that someone was evaluating your physical appearance?) and unwanted explicit

sexual advances (e.g., How often has someone grabbed or pinched one of your private body areas against your will?). Following Kozee and colleagues, scores were averaged for the body evaluation (M = 2.41, SD = 0.83) and unwanted explicit sexual advances (M = 1.66, SD = 0.66) subscales, as well as the entire scale (M = 2.21, SD = 0.73), with higher scores indicating a greater frequency of experiencing sexual objectification. Similar to the high internal consistency reported by Kozee and colleagues (α = .92), the scale (α = .93) and subscales (α_{BE} = .93, α_{UESA} = .84) demonstrated high internal consistency reliability.

The VCOPAS is a 21-item measure that assesses the frequency of receiving commentary related to physical appearance. Participants reported how frequently they received commentary regarding their appearance within the past two years using a 5-point Likert-type scale ranging from *never* to *always*. The VCOPAS consists of three subscales: negative commentary about weight and shape (e.g., You need to start watching what you eat), positive commentary about weight and shape (e.g., I wish I had a body like yours), and positive general appearance commentary (e.g., Your outfit looks great on you). Responses were averaged for the negative weight and shape commentary (M = 1.86, SD = 0.74), positive weight and shape commentary (M = 2.51, SD = 0.92), positive general appearance commentary (M = 3.30, SD = 0.79), and overall scale (M = 2.49, SD = 0.54), with higher scores indicating more experiences of physical appearance commentary. Consistent with the high internal consistency ($\alpha \geq .75$, $r \geq .78$) reported by Herbozo and Thompson, the subscales (α_{NWS} = .87, α_{PWS} = .84, α_{PGA} = .80) and overall scale (α = .82) demonstrated high internal consistency reliability.

For the purposes of this study, the ISOS and VCOPAS were modified to assess participants perceived valence of each experience. Specifically, participants were asked to indicate how each experience made them feel using a 5-point Likert-type scale ranging from *very negative* to *very positive*, where negative was defined as bothersome, stressful, or unwelcome, and positive is defined was fun, flattering, or welcome. Responses were averaged for the body evaluation (M = 2.20, SD = 0.67; α = .86) and unwanted explicit sexual advances (M = 1.53, SD = 0.68; α = .93) subscales, as well as the entire ISOS scale (M = 2.08, SD = 0.66; α = .94); higher scores indicate more positive perceptions of experienced objectification. Averages were also computed for perceptions of verbal negative weight and body shape commentary (M = 2.25, SD = 0.73, α = .87), positive weight and body shape commentary (M = 4.01, SD = 0.65, α = .56), positive general appearance commentary (M = 4.40, SD = 0.42, α = .74), and the overall VCOPAS scale (M = 3.62, SD = 0.57, α = .88), with higher scores indicating more positive perceptions.

Self-objectification. Self-objectification was measured with subscales from the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996; Appendix D). The OBCS consists of three subscales that measure the extent to which women are conscious of their body through an objectifying lens. This study relied on the use of the body surveillance and body shame subscales. The control subscale was not used due to issues of validity and reliability (Calogero, 2010). Participants were asked to rate their agreement with 16 statements using a 7-point Likert scale ranging from *strongly disagree* to *strongly agree* with a midpoint of *neither agree or disagree* in addition to a *not applicable* option. Body surveillance was assessed by agreement with statements like, “During the day, I think about how I look many times,” whereas body shame was

assessed by agreement with statements like, "I would be ashamed for people to know what I really weigh." Appropriate responses were reverse-coded, and all responses were averaged for the body surveillance (M = 4.01, SD = 0.93), body shame, (M = 2.81, SD = 1.28), and overall scale (M = 3.41, SD = 0.99), with higher scores indicating greater self-objectification manifesting though body surveillance and body shame. In line with the internal consistencies (α = .75) reported by McKinley and Hyde, current use of this measure revealed good reliability ($\alpha_{overall}$ = .90, $\alpha_{surveillance}$ = .82, α_{shame} = .90).

Feminine norm internalization. Participants' internalization of feminine norms was measured using the short-form of the Conformity to Feminine Norms Inventory (CFNI; Parent & Moradi, 2010; Appendix E; a psychometrically validated short-form of the original 84-item scale, Mahalik et al., 2005). The CFNI measures the extent to which women conform to nine feminine gender norms dominant in American culture: acting sweet and nice (e.g., Being nice to others is extremely important), being relational (e.g., I believe that my friendships should be maintained at all costs), modesty (e.g., I hate telling people about my accomplishments), domesticity (e.g., It is important to keep your living space clean), sexual fidelity (e.g., I would feel guilty if I had a one night stand), caring for children (e.g., Taking care of children is extremely fulfilling), being in a romantic relationship (e.g., Having a romantic relationship is essential in life), thinness (e.g., I would be happier if I was thinner), and investment in appearance (e.g., I spend more than 30 minutes a day doing my hair and make-up). Participants were asked to rate agreement with the 45 statements using a 4-point scale ranging from *strongly disagree* to *strongly agree*. Parent and Moradi (2011) reported convergent validity of the CFNI short-form and its subscale factors are positively correlated with the corresponding scales of the

original CFNI. Some items were reverse coded, and all items were averaged (sweet and nice $M = 2.97$, $SD = 0.33$; relational $M = 2.87$, $SD = 0.58$; modesty $M = 2.28$, $SD = 0.50$; domesticity $M = 3.21$, $SD = 0.55$; sexual fidelity $M = 2.81$, $SD = 0.79$; childcare $M = 2.96$, $SD = 0.78$; romantic relationships $M = 2.58$, $SD = 0.67$; thinness $M = 2.75$, $SD = 0.86$; appearance investment $M = 2.45$, $SD = 0.76$; overall scale $M = 2.76$, $SD = 0.28$, range = 1.58-3.56, only 13.56% of participants were below the midpoint of the scale) with higher scores representing higher conformity to feminine norms. Consistent with reliability demonstrated by Parent and Moradi (2011; α range = .68 - .89, overall α = .79), the CFNI revealed adequate to excellent internal consistency reliability (α range = .75 - .93, overall α = .81).

Goals. Participants' goals were assessed using the revised version of the Domain Specific Hope Scale (DSHS-R; Shorey & Snyder, 2004; Appendix F). The DSHS-R measures goal-setting and goal attainment into a component called hope, across nine life domains: social relationships, religion/spiritual life, sports, academics, physical health, romantic relationships, family life, psychological health, and work. Given the intersection of the current study examining feminine goals this measure was modified to include the domains of appearance and housework/chores as well. For each domain, participants rated agreement of 9-statements using an 8-point scale ranging from *definitely false* to *definitely true*. Participants indicated their goals in the domain (e.g., I have many goals relating to my love life), perceived pathways to achieve goals in the domain (e.g., I can think of many ways to establish romantic relationships or nurture my existing one), and agency toward goals in that domain (e.g., I am motivated to enhance my romantic relationships). Scores were averaged for each domain (social relationships $M = 5.50$, SD

= 1.39; religion/spiritual life *M* = 4.65, *SD* = 2.25; sports *M* = 4.75, *SD* = 2.05; academics *M* = 7.02, *SD* = 0.88; physical health *M* = 6.28, *SD* = 1.32; romantic relationships *M* = 5.75, *SD* = 1.83; family life *M* = 6.15, *SD* = 1.42; psychological health *M* = 5.62, *SD* = 1.42; work *M* = 6.68, *SD* = 1.07; appearance *M* = 5.52, *SD* = 1.33; housework *M* = 6.08, *SD* = 1.12), with higher scores indicating stronger goals in that life domain. Like previously established (Shorey & Snyder, 2004) internal reliability (α = .87 to .96), the DSHS-R revealed high internal consistency reliability across domains (α = .86 - .98). For the purpose of this study, a composite was calculated to indicate feminine goals by averaging romantic relationship, appearance, and housework goals (*M* = 5.76, *SD* = 1.03, α =.70).

Participants were then presented with careers in STEM (mechanical engineering, computer science, aerospace engineer, environmental scientist) and asked to rate the extent to which they are interested in pursuing each career using a 1 (*not at all interested*) to 7 (*extremely interested*) scale (Diekman et al., 2010). Responses were averaged (*M* = 2.33, *SD* = 1.43), with higher values indicating greater STEM career goals. Similar to the original use of this scale (α = .92), this measure proved to have excellent internal consistency reliability (α = .90).

Demographics. Finally, participants completed demographic questions (Appendix G). Along with questions about race and ethnicity, age, sexual orientation, and major, participants were also asked to provide additional demographic information for exploratory purposes about their classes and career aspirations. In particular, participants were asked to report their major, GPA (*M* = 3.45, *SD* = 0.43), list of courses in which they were currently enrolled, and level of education they planned to pursue. Furthermore,

participants provided some demographic information about their parents including: occupations, education levels, and the household division of labor between parents.

EMA survey

Despite the ability to garner information as it occurs with EMA surveys, the in-the-moment nature of EMA can act as a limitation. Multiple prompts a day can become burdensome for participants, and thus keeping survey prompts brief and to the point is essential to avoid participant fatigue or attrition. Although the few questions permitted with the use of EMA is a limitation of the methodology, researchers have suggested multiple items are unnecessary for establishing reliability because of the longitudinal data collection (Csikszentmihalyi & Larson, 1987). Thus, the measures included in the EMA survey portion of this study are shortened adaptations of measures included within the baseline survey portion of this study in attempts to sufficiently capture the concepts weighted against the amount of time it took participants to complete each EMA survey response (all EMA materials can be found in Appendix H).

Self-objectification. Participants were first asked about their state level of self-objectification. Specifically, participants were asked, "Since the last survey, have you been thinking about how you look to other people?" with response options on a sliding scale from 0 (*not at all*) to 100 (*very much*). This item was originally adapted from the self-surveillance subscale of the OBCS (McKinley & Hyde, 1996) and used in a similar EMA study (Holland et al., 2016) as a measure of self-objectification.

Objectifying experiences. Participants' experiences of objectification were assessed in the EMA portion of the study through the use of a checklist (adapted from Holland et al., 2016). In particular, participants were asked, "Since the last survey, have

you experienced any of the following (check all that apply)?" and provided with a checklist of objectifying experiences. Choice options consisted of: (a) commentary about your weight or body shape, (b) commentary about your general appearance, (c) catcalling, wolf-whistling, or car honking, (d) sexual remarks made about your body, (e) sexual looks at your body, (f) degrading sexual gestures, or (g) none of the above (as adapted from Kozee et al., 2007; Herbozo & Thompson, 2006). Although the ISOS and VCOPAS are commonly used as stable measures of experiences, previous EMA work has successfully relied upon the ISOS as a state level measurement of objectification experienced in the moment (Holland et al., 2016). While previous work has not included the VCOPAS measure to assess objectification experienced in the moment, this inclusion in the present work allows for a more in-depth measurement of objectifying experiences by including objectifying commentary as well. For each experience indicated, participants were asked to indicate "How did receiving [objectifying experience] make you feel?" using a 5-point Likert-type scale with anchors from *really bad* to *really good*.

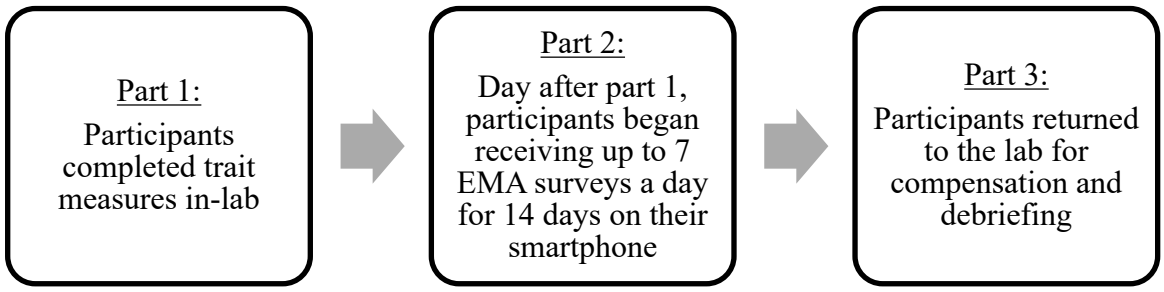
Goals. Next, participants responded to a number of questions about their current goals. Participants were asked to, "Now, please think of your most important short-term goal in the present moment. Please indicate which domain of your life this goal falls under," with a provided list of various life domains constructed from the DSHS-R (Shorey & Snyder, 2004). The list included: social relationships, religion/spiritual life, sports, physical health, romantic relationships, family life, psychological health, work, the appearance and housework/chores domains added in the baseline measure, and given the focus of this study academics were broken down into classes in math, physical science, social science, technology, language, and art/humanities. Reporting a math,

physical science, or technology class goal was categorized as reporting a STEM education goal, whereas reporting a social science, language, or art/humanity class goal was categorized as a feminine education goal. Moreover, reporting a romantic relationship, housework/chore, or appearance goal was categorized as reporting a feminine goal.

Procedure

The procedure of this study occurred in three parts. A full schedule of participation is depicted in Figure 2.1[5]. Interested participants contacted the researcher to schedule an in-lab session to complete the first part of the study.

Figure 2.1. Process of participation in Study 1 and Study 2

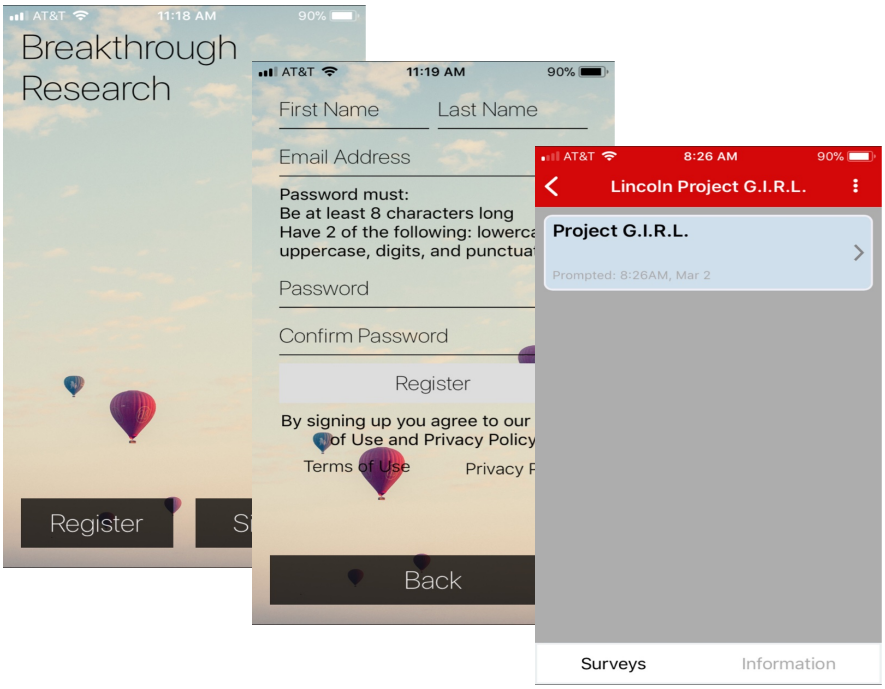


Following reading and signing of the informed consent form (Appendix I), participants completed trait survey measures assessing goals and experiences occurring within the past two years via Qualtrics on a laboratory computer. Beyond the measures listed above, participants completed a number of exploratory measures; a description of these measures and descriptive statistics can be found in the Supplemental Information. Once the survey was completed, with the assistance of the researcher, participants downloaded the Metric Wire app (http://metricwire.com) – a custom-built application designed for delivering real-time surveys, to their smartphone. As shown in screenshots

[5] In Part 3, participants also completed exploratory follow-up measures that are not noted in the Figure.

included in Figure 2.2, once participants created an account in the app, their account was synced with the "Project G.I.R.L." study to access the study EMA surveys.

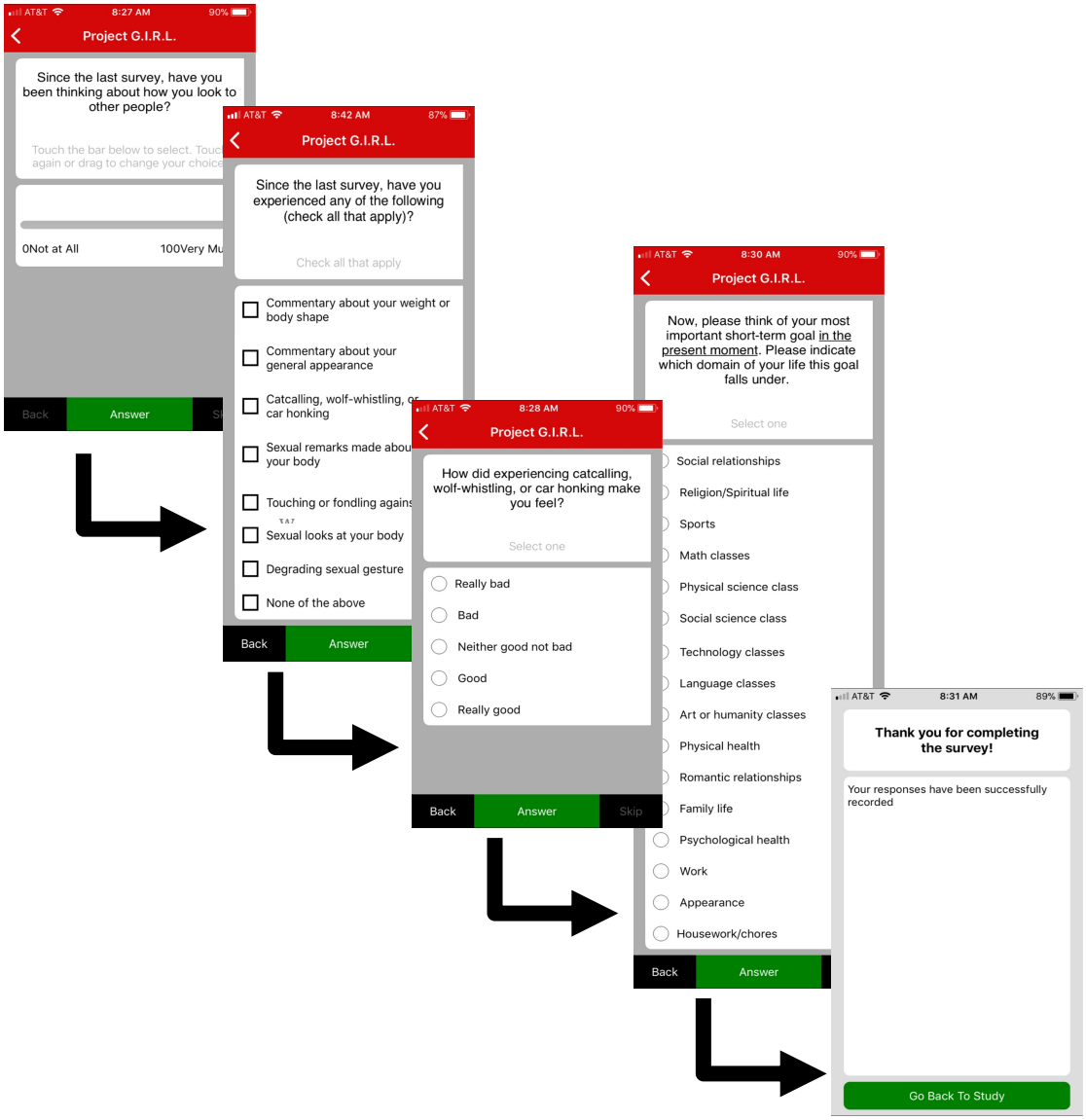
Figure 2.2. Screenshots from the process of downloading the MetricWire application



After successful download, the researcher walked the participant through a practice survey replicating the actual EMA survey (depicted in Figure 2.3[6]), explaining the meaning of each EMA survey question, how to use the app response functions, and clarifying the structure of receiving prompts (e.g., when prompts began and stop, how survey reminders work, what happens after the two weeks, noting that they do not need to be on wi-fi or have the app open, what happens if they miss surveys).

[6] Questions regarding perceptions of the experience were only administered when participants indicated they have recently had that experience (e.g., in the example depicted above, this follow-up question would only occur if the participant had indicated they experienced catcalling, wolf-whistling, or car honking since the last survey.

Figure 2.3. Screenshots of the EMA survey



Before leaving the lab, participants scheduled their return two weeks later to complete the final part of the study and receive their compensation. All participants successfully returned after the two-week EMA portion of the study.

Participants received prompts through the app on their smartphone notifying them when an EMA survey was available to complete. Over the course of 14 days, participants received 7 surveys each day that were randomly scheduled to occur between the hours of

8:00 am and 10:00 pm[7] with a minimum of 2 hours between each survey. Due to the random schedule design, each participant received surveys at times that varied between days and between participants. After receiving a prompt, the app provided a 2-minute reminder if the participant did not open the survey. Participants were given 15-minutes after the initial prompt to complete the survey before expiring and becoming inaccessible. Importantly, the app assigned random schedules a week in advance and survey responses were downloaded whenever the participant was on a wi-fi connection, meaning participants were not required to be connected to wi-fi or have the app running for the surveys to work. After two weeks, participants returned to the lab[8] to be debriefed, compensated based upon the completion of EMA surveys, and thanked for their time.

Study 2

Study 2 was a direct replication of Study 1, utilizing the same procedure with a sample of younger women. Given that adolescent girls may be at greater risk for experiencing objectification and internalizing feminine norms, this study relied upon a sample of female high school students. This extension illuminates objectifying experiences of female high school students as well as whether the proposed model is stronger for a younger and potentially more vulnerable population.

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[7] Ideally, participants would have received prompts on a schedule customized to their waking schedule; however, the use of the MetricWire software did not allow for this customization. As a result, these hours were selected to optimize the likelihood of college-aged participants being awake to complete the prompts. When notified of this schedule during instruction on how to use the app, no participants reported inability to answer prompts within this timeframe on a regular basis.

[8] During this final in-lab session, participants also completed the same trait measures included in Part 1 of the study including: objectification experiences occurring within the past two weeks (ISOS, VCOPAS), trait level of self-objectification (OBCS), internalization of feminine norms (CFNI), and goals (DSHS-R). The collection of these measures was exploratory for the potential to compare between trait responses provided in Part 1 of the study with those collected in the EMA surveys (Part 2) as well as Part 3 of the study.

Participants

This study aimed to recruit a minimum of 50 female high school students (see sample size justification in Study 1) for "Project G.I.R.L. – Gaining Insight into Real Life." The sample size objective was based on increased power from the use of repeated measures, but due to time constraints on data collection (e.g., the contractual length of the MetricWire app that available NSF funding provided), only 40 girls participated. Female high school students were recruited through the use of fliers posted throughout the city in which the study took place in (e.g., at coffeeshops, ice cream shops, stores) and advertisements shared with student-aged groups within the city (e.g., girl scouts, softball teams). Similar to Study 1, advertisements indicated that participation occurred over the course of a two-week period and required a smartphone[9]. Interested participants contacted the researcher via phone or email and were screened for 1) female gender, 2) high school enrollment, and 3) owning a smartphone.[10] All interested participants were eligible and scheduled for the in-lab portion of the study with their parent/guardian.

Participants ranged in age from 15 to 18 (M = 16.13, SD = 1.09) and primarily identified as White (29, 72.5%), followed by Black or African American (4, 10%), Asian (2, 5%), American Indian or Alaska Native (1, 2.5%), or another racial or ethnic identity (4, 10%). Similar to Study 1, reimbursement was contingent upon compliance with the EMA survey prompts; completing a higher percentage of the 98 EMA surveys over the

[9] Requiring participants to own a smartphone was a potential limitation of the study. Recent surveys of high school student technology use suggest the majority of students in high school (82%) own a smartphone (Poll, 2015). While participants may have self-excluded based on the requirement identified on the advertisement, no interested individuals contacted the researcher without the ability to use a smartphone for the study.

[10] Although high school participants were not screened for current enrollment in a STEM class like the college sample was in Study 1, all high school participants reported being enrolled in at least 1 STEM course during the study.

course of two weeks resulted in a larger monetary reimbursement (Hufford & Shields, 2002). Given the age difference, the maximum compensation level was reduced to $50 to avoid coercion; participants who completed the in-lab portion of the study and a quarter of the surveys (24) received $15, completing 25-49% (25- 48) resulted in a $5 bonus, completing 50-59% (49-57) resulted in a $10 bonus, completing 60-69% (58-67) resulted in a $15 bonus, completing 70-84% (68-82) resulted in a $25 bonus, and completing 85% or more (83-98) resulted in a $35. Similar to college participants in Study 1, on average participants completed 66 (*SD* = 18.79, range = 12 – 92), or 68% of the 98 surveys, and received an average compensation of $37 (*SD* = $10.65, range = $0 - $50). Total attrition did not occur, all participants completed at least one survey through day 14; however, intermittent attrition did occur sparingly (on days: 1, 3, 5-10, and 12, one participant did not complete at least one survey, and on days: 11 and 13, two participants did not complete at least one survey). Moreover, all participants successfully returned to the lab following the two-week EMA portion of the study.

Materials and procedure

The same materials used within Study 1 were administered in Study 2 (see Appendices B – H, see Table 2.1 for descriptive statistics). Although each of these measures has been exclusively validated with undergraduate- and middle-aged populations, some of these measures have been used reliably with high school samples (e.g., the OBCS in Fredrickson & Harrison, 2005, Knauss, Paxton, & Alsaker, 2008, Grabe, Hyde, & Lindberg, 2007, and Slater & Tiggemann, 2011). A minor change was required to adapt one measure to the high school-aged sample. Specifically, three questions from the ISOS (Kozee et al., 2007) about unwanted sexual advances were

excluded. Collecting information on these experiences would mandate reporting of underage sexual assault; exclusion of these items increased participants' comfort with responding honestly and minimized participants' concerns of anonymity because reporting of body evaluation experiences included within the ISOS is not required. This change is also reflected in the EMA survey in which the question about unwanted sexual touching was removed from the survey.

Table 2.1: Study 2 measure means, standard deviations, and Cronbach's alphas.

	M	*SD*	α
Frequency of experiencing body evaluations	2.27	0.74	.93
Perceptions of body evaluations	2.03	0.54	.86
Overall Verbal Commentary on Appearance Scale	2.34	0.55	.86
Negative weight and body shape commentary	1.71	0.62	.86
Positive weight and body shape commentary	2.19	0.94	.85
Positive general appearance commentary	3.35	0.83	.83
Overall perceptions of verbal commentary on appearance	3.57	0.57	.71
Perceptions of negative weight and body shape commentary	2.12	0.94	.93
Perceptions of positive weight and body shape commentary	3.74	0.66	.72
Perceptions of positive general appearance commentary	4.47	0.37	.78
Overall Objectified Body Consciousness scale	3.58	0.77	.77
Objectified Body Consciousness – Body shame	3.08	0.97	.76
Objectified Body Consciousness – Body surveillance	4.09	0.89	.77
Conformity to feminine norms	2.78	0.24	.74
Sweet and nice norm	3.34	0.40	.50
Relational norm	2.99	0.68	.85
Modesty norm	2.13	0.51	.75
Domesticity norm	3.05	0.53	.81
Sexual fidelity norm	2.79	0.85	.87
Childcare norm	3.15	0.69	.91
Pursuing romantic relationships norm	2.28	0.59	.68
Thinness norm	2.75	0.68	.85
Investment in appearance norm	2.55	0.77	.81
Domain hope goals			
Social relationships	5.72	1.69	.93
Religion/spiritual life	4.33	2.42	.98
Sports	5.40	2.47	.98

Academics	7.23	0.69	.84
Physical health	6.01	1.35	.92
Romantic relationships	5.41	1.83	.93
Family life	5.85	1.40	.90
Psychological health	5.74	1.44	.92
Work	4.33	2.42	.90
Appearance	6.17	1.16	.88
Housework	5.82	1.25	.82
STEM career interest	2.27	1.12	.88

Study 2 also relied on the same procedure of Study 1, with one exception. To participate, girls were required to bring a parent or guardian to the first in-lab session. Upon arrival to the lab, participants read and signed an informed assent form (Appendix J), while their guardian read and signed an informed consent form (Appendix K). Participants then completed the trait survey measures on a computer, followed by downloading the MetricWire app to their smartphone with a demonstration of using the app with the researcher (see Figures 2.1, 2.2, and 2.3). Like in Study 1, participants received seven surveys a day over the course of two weeks. Surveys were a minimum of a two hours apart; however, to accommodate high school students' schedules, survey prompts occurred between the hours of 6:00am and 9:30pm.[11] At the completion of the two-week EMA data collection, participants returned to the lab for debriefing, compensation, and to be thanked for their time.[12]

[11] This survey schedule was based upon the schedule of the city's school system, in which the first classes began between the hours of 7:00 and 8:00 am.

[12] Like in Study 1, upon return to the lab, participants again completed the primary trait level measures for exploratory purposes in comparing trait level responses following the study to those collected at baseline and during the EMA portions of the study.

Chapter 3: Results

The hypotheses were assessed in multiple ways. Using first the baseline trait responses, correlations among the variables were examined, and path analyses were modeled. Then, using responses collected during the two-week EMA portion of the study, correlations among experiences were examined. Finally, multilevel modeling was used to examine whether daily experiences were associated with outcomes that same-day and a day later.

Trait Variable Correlations

Responses to the trait level measures collected during the in-lab baseline portion of the study were examined using bivariate statistics (see Table 3.1) for both the college student sample (above diagonal) and high school student sample (below diagonal).

Table 3.1: Correlations of trait variables

	1	2	3	4	5	6	7	8	9	10
1. Interpersonal Objectification		-.41**	.33**	.56**	-.23*	.24*	.05	.08	.05	.24*
2. Positive perceptions of all objectification	-.14		-.26*	.01	.27*	-.19	-.18	-.13	-.07	.06
3. Negative appearance comments	.69**	.10		.08	-.62**	.02	.18	.12	.27*	-.08
4. Positive appearance comments	.34*	.24	.17		.08	.04	-.18	.08	.14	.45**
5. Positive perceptions of all appearance commentary	-.58**	.16	-.68**	.05		-.27*	-.41**	-.10	-.09	.13
6. Body surveillance	.41**	-.37*	.34*	-.19	-.30		.58**	.36**	-.28	.21
7. Body shame	.34*	-.21	.33*	-.07	-.10	.39*		.36**	-.22*	.13
8. Feminine norms	.02	-.18	.08	-.27	.03	.44**	.23		.06	.44**
9. STEM interest	-.14	-.09	-.09	-.09	-.15	.08	.13	-.16		.03
10. Feminine hope	.47**	-.10	.32*	.38*	-.21	.10	.24	.21	-.06	

Note. College women values above the diagonal and high school girls values below the diagonal.
* $p < .05$, ** $p < .001$.

The relation between objectification experiences and goals was examined first (Hypothesis 1). Inconsistent with Hypothesis 1a, more objectification experiences were unrelated to less STEM interest for college women or high school girls. Interestingly, while there was no relation between both objectification experiences and positive appearance commentary and STEM interests, more experiences of negative appearance commentary were related to *more* interest in STEM for college women. Consistent with Hypothesis 1b, more objectification was associated with significantly more feminine goals (i.e., having goals in feminine domains of romantic relationships, appearance, and housework) for college women (with the exception of negative appearance commentary) and high school girls.

In line with Hypothesis 2, more experiences of objectification were significantly associated with more body surveillance among college women and high school girls, as well as more body shame among high school girls. Interestingly, more experiences of objectification were related to more positive perceptions for college women, whereas more experiences of negative appearance commentary were related to less positive perceptions of objectification experiences. Additionally, more negative perceptions of appearance commentary were related to significantly more body surveillance and body shame among college women, and more negative perceptions of objectification was related to more body surveillance for high school girls.

Finally, inconsistent with hypotheses, self-objectification was unrelated to less STEM interest (Hypothesis 3a) and more feminine goals (Hypothesis 3b).

Path Analyses

To test the mediation and moderated mediation models hypothesized, a series of path analyses were conducted using Hayes's (2013) PROCESS Macro in SPSS with the baseline trait measure responses. Given the relatively small sample size within each study, responses were collapsed across samples. Importantly, caution should be used when interpreting the results given the limited sample size; this point is returned to within the general discussion.

Moderation. First, Hypothesis 1d: the effect of objectification experiences in the past two years on goals would be moderated by women's conformity to feminine norms, was examined. The frequency of objectification (interpersonal and commentary as measured by the ISOS and VCOPAS) was included as the predictor and conformity to feminine norms was included as a moderator in predicting STEM interest, and feminine goals separately. The interaction between objectification experiences and conformity to feminine norms in predicting STEM interest (unstandardized coefficient = 1.30, *SE* = 0.89, *p* = .15) was not significant, inconsistent with Hypothesis 1d. Yet, a significant interaction between objectification experiences and conformity to feminine norms did emerge in predicting feminine goals (unstandardized coefficient = -1.25, *SE* = 0.58, *p* = .03). A regions-of-significance analysis was conducted, which determines whether there are points along the continuum of the moderator (conformity to feminine norms) at which the conditional effects of objectification on feminine goals transition between statistically significant and not significant (Hayes, 2013). However, contrary to expectations, results revealed that objectification experiences were only significantly associated with more feminine goals at lower levels of conformity to feminine norms (scores of 2.89 and

lower; the conditional effect at that point on the continuum was 0.35 unstandardized, 95% CI [.1568, .7498]; if zero does not fall within the CI, it can be concluded that an indirect effect is different from zero).[13]

Next, Hypothesis 3d: that the effect of trait self-objectification on goals would be moderated by conformity to feminine norms, was examined. Separate models were conducted in which trait self-objectification (as measured by OBCS body surveillance) was included as the predictor and conformity to feminine norms was included as the moderator of the outcomes: STEM interest and feminine goals separately (Model 1). The interaction between trait self-objectification and conformity to feminine norms in predicting STEM interest (unstandardized coefficient = -0.15, *SE* = 0.43, *p* = .74) was not significant, inconsistent with Hypothesis 3d. But in partial support of Hypothesis 3d, the interaction between trait self-objectification and conformity to feminine norms in predicting feminine goals was marginally significant (unstandardized coefficient = -0.56, *SE* = 0.30, *p* = .066); for women and girls low in conformity to feminine norms, the relation between higher self-objectification and greater feminine goals was lessened. Finally, inconsistent with hypotheses, for women and girls high in conformity to feminine norms, higher trait levels of self-objectification did not predict less STEM or more feminine goals.

[13] I also examined whether the effect of objectification experiences in the past two years on trait self-objectification is moderated by perceptions of objectification. The frequency of experiencing objectification was entered as the predictor, perceptions of experiences as the moderator, and self-objectification as the outcome (Model 1). The interaction between objectification experiences and perceptions of objectification as predictors of self-objectification (unstandardized coefficient = -0.45, *SE* = 0.26, *p* = .09) was insignfiicant; when objectification was perceived more positively, objectification experiences were not more likely to result in self-objectification.

Moderated Mediation. Finally, as a test of the overall model (Hypothesis 4) a moderated mediation model was tested. Objectification experiences in the past two years were included as the predictor, trait self-objectification was included as the mediator, and STEM interest and feminine goals were included as outcomes in separate models. Moreover, conformity to feminine norms was included as a moderator in the relation between objectification and goals, and self-objectification and goals (Model 15, Hayes, 2013). A bootstrapping approach was used (Shrout & Bolger, 2002) in attempts to maximize power while minimizing Type I errors. Bootstrapping provides an empirical approximation of sampling distributions of indirect effects and produces confidence intervals (CI) of estimates, which indicate indirect effects are different from zero if zero is not within the interval. Nonparametric resampling method (bias-correcting bootstrap) with 5,000 resamples drawn to derive the 95% CIs was performed for the indirect effect of objectification experiences on goals.

Model results predicting STEM interest are reported in Figure 3.1. The model accounted for 4% of the variance in self-objectification and 7% of the variance in STEM interest. Consistent with Hypothesis 2, more experiences of objectification significantly predicted higher trait levels of self-objectification. Contrary to hypotheses, there was no direct effect of objectification experiences (Hypothesis 1a) or trait self-objectification (Hypothesis 3a) on STEM interest. Additionally, the unique effects of objectification experiences (Hypothesis 1d) and trait self-objectification (Hypothesis 3d) on STEM interest were not enhanced with higher conformity to feminine norms. Moderated mediation was not present (unstandardized coefficient = -0.05, *SE* = .18, 95% CI [-.4771, .2551]); contrary to Hypothesis 4, objectification experiences did not indirectly decrease

STEM interest through self-objectification as moderated by women and girls' conformity to feminine norms.

Figure 3.1. Moderated mediation model of objectification experiences on STEM interest

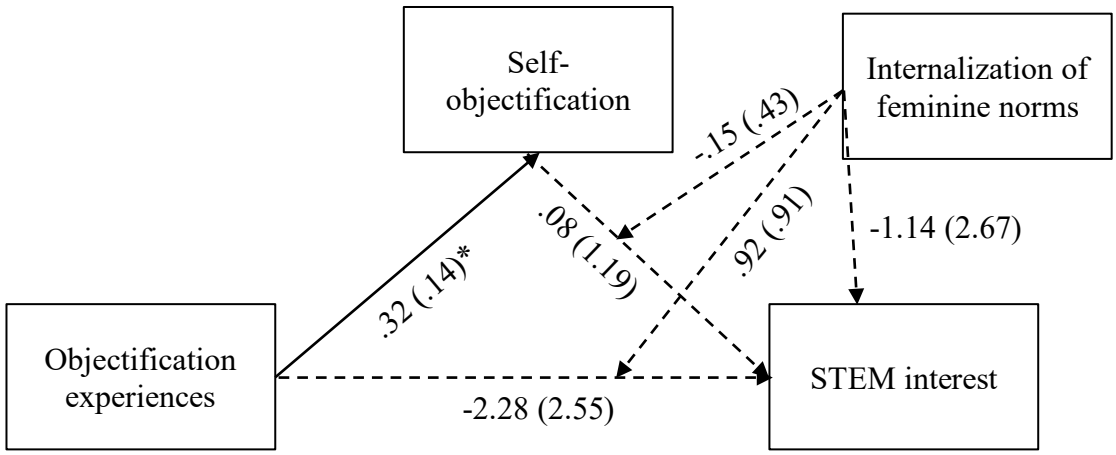

Figure 3.1. Results of the conditional process model. Unstandardized coefficient (standard error). Solid lines indicate significant paths (** $p < .01$, * $p < .05$), dashed lines indicate nonsignificant paths.

Model results predicting feminine goals are reported in Figure 3.2. The model accounted for 4% of the variance in trait self-objectification and 30% of the variance in feminine goals. Like the model predicting STEM interest, more objectification experiences predicted higher trait self-objectification (Hypothesis 2). In further support of Hypothesis 1, more objectification experiences also significantly predicted more feminine goals (Hypothesis 1b), and this relation was moderated by conformity to feminine norms (Hypothesis 1d). As expected, for young women low in conformity to feminine norms (scores below the mean 2.77, on a scale of 1-5) the effect of objectification experiences on increasing feminine goal hope was lessened (unstandardized coefficient = .62, *SE* = .14, 95% CI [.3464, .8924]). Yet, inconsistent with Hypothesis 3, trait self-objectification did not predict feminine goals (Hypothesis 3b), and this relation was not moderated by conformity to feminine norms (Hypothesis 3d). Furthermore, inconsistent with

Hypothesis 4, moderated mediation was not present in the model predicting feminine goal hope (unstandardized coefficient = -.12, *SE* = .13, 95% CI [-.3941, .1292]). Although women and girls' feminine goal hope was not indirectly impacted by objectification experiences through self-objectification, experiences of objectification did directly predict increased feminine goal hope.

Figure 3.2. Moderated mediation model of objectification experiences on feminine goal hope

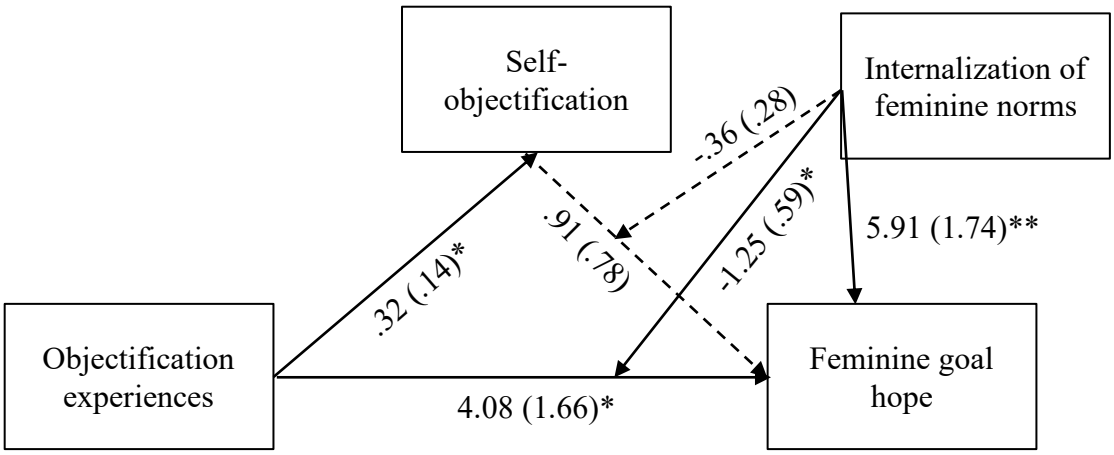

Figure 3.2. Results of the conditional process model. Unstandardized coefficient (standard error). Solid lines indicate significant paths (** $p < .01$, * $p < .05$), dashed lines indicate nonsignificant paths.

EMA Variable Descriptive Statistics

On average, female college students reported 7.86 (*SD* = 7.19, range = 0-31, mode = 7) experiences of objectification over the course of the two-week long EMA portion of the study; in other words, college women reported experiencing interpersonal objectification about every other day. Female high school students reported an average of 12.98 (*SD* = 17.53, range = 0 – 101, without the outlier of 101 experiences, *M* = 10.72, *SD* = 10.30, range = 0 – 39, mode = 0) experiences of objectification during the two-week EMA portion of the study; meaning that high school girls reported experiencing objectification about three times in four days. A comparison of the two samples revealed

that high school girls reported significantly more experiences of objectification than college women over the two-week EMA portion of the study, $t(125) = 2.35$, $p = .02$. High school girls either experience more interpersonal objectification than college women possibly because of their maturing bodies, or college women may be reporting fewer experiences because the continuous experiences of objectification may desensitize them; the potential variability in reporting experiences is returned to within the discussion.

In an average day, college women reported low levels of engaging in self-objectification ($M = 24.19$, $SD = 21.13$, 0-100 scale), with the average maximum level of self-objectification per day hovering around the mid-point of the scale ($M = 40.94$, $SD = 28.82$, 0-100 scale). High school girls reported similar levels of self-objectification ($M = 25.67$, $SD = 19.97$, 0-100 scale) in an average day to college women, $t(125) = 0.49$, $p = .42$, with the average maximum level of self-objectification in a day hovering around the mid-point of the scale ($M = 43.81$, $SD = 29.90$, 0-100 scale).

Over the course of two weeks, college women reported an average of 16.05 STEM educational goals ($SD = 14.82$, range = 0 = 79, mode = 0), 9.31 feminine goals ($SD = 8.23$, range = 0 = 44, mode = 0), and 7.11 feminine education goals ($SD = 7.84$, range = 0 = 32, mode = 0). In contrast, high school girls reported an average of 12.35 STEM educational goals ($SD = 15.84$, range = 0 = 79, mode = 9), 11.53 feminine goals ($SD = 7.63$, range = 0 = 35, mode = 7), and 8.70 feminine education goals ($SD = 6.44$, range = 0 = 24, mode = 0) over the course of two weeks.

Additionally, responses to EMA surveys were analyzed with bivariate statistics; correlations can be found in Table 3.2 (college student sample above the diagonal, high school student sample below the diagonal).

Table 3.2: Correlations of EMA variables

	1	2	3	4	5	6	7
1. Self-objectification		.18**	-.18**	-.17**	.06**	.06**	.05**
2. Sum of objectification experiences	.24**			-.04	-.02	.03*	-.01
3. No objectification experiences	-.26**				.03**	-.02	.01
4. Perceptions of objectification	.04	.02	-.02		-.04	-.07	.03
5. STEM education goal	-.04	-.07**	.08**			-.05**	-.05**
6. Feminine goal	.001	.07**	-.07**		-.22**		-.03*
7. Feminine education goal	.03	.01	-.03		-.18**	-.18**	

Note. College student values are above the diagonal and high school student values are below the diagonal. * $p < .05$, ** $p < .001$.

First, the relations between objectification experiences and goals (Hypothesis 1) were examined. Contrary to Hypothesis 1a, more experiences of objectification were not associated with fewer STEM educational goals over two weeks. Yet, not reporting any experiences of objectification over the two weeks was significantly correlated with having more STEM educational goals for college women and high school girls. Consistent with Hypothesis 1b, more experiences of objectification were related to reporting more feminine goals for women and girls; moreover, no experiences of objectification over the course of two weeks was correlated with fewer feminine goals. Contrary to Hypothesis 1c, there was no relation between experiencing more objectification and reporting more feminine educational goals for either college women or high school girls.

In support of Hypothesis 2, more experiences of objectification over the two weeks were associated with a higher average level of self-objectification; furthermore, not reporting any objectification over the course of the two weeks was associated with a lower average level of self-objectification.

Hypothesis 3 regarding the relations between self-objectification and goals was partially supported. Inconsistent with Hypothesis 3, for college women more self-objectification reported during the two weeks was associated with having more STEM educational goals (Hypothesis 3a). But consistent with Hypothesis 3, for college women more self-objectification reported during the two weeks was also associated with more feminine goals (Hypothesis 3b) and more feminine educational goals (Hypothesis 3c). In contrast, for high school girls, self-objectification levels during the two-week session were unrelated to less STEM educational goals (Hypothesis 3a), more feminine goals (Hypothesis 3b), and more feminine educational goals (Hypothesis 3c).

Multilevel Modeling

Multilevel modeling (MLM) is currently the most widely used analytic approach for analyzing longitudinal data (including EMA data) with time-varying and time-invariant covariates (Schwartz & Stone, 1998; 2007). Using MLM for longitudinal data analyses is advantageous for EMA data because, (a) MLM does not assume participants are measured on the same number of time points, (b) change is estimated for individual participants, (c) MLM can effectively manage missing data, and (d) MLM adjusts for bias due to the nonindependence of observations that occurs when participants complete repeated measures (Kenny, Korchmaros, & Bolger, 2003; Krull & MacKinnon, 2001). Using MLM (HLM version 7.03, Raudenbush, Bryk, & Congdon, 2017), specifically growth curve analytic techniques (Bryk & Raudenbush, 1987), the two levels of EMA data were examined simultaneously (i.e., EMA surveys nested within persons).

General linear mixed models (i.e., MLMs in which daily responses are nested within persons) were used to examine predictors of daily fluctuations in self-

objectification and goals. In Study 1, a sample of 1161 observations were obtained from 88 college students, and in Study 2 a sample of 546 observations were obtained from 40 high school students. Aggregate daily responses were first created in which responses from each day were averaged (i.e., self-objectification level) or summed (i.e., number of objectifying experiences, number of STEM/feminine/feminine education goals). Daily responses were analyzed as the lower Level 1 units (e.g., average self-objectification level for the day), which were nested within persons as the Level 2 units. With the use of MLM, within-person effects can vary randomly across persons, and person-level (Level 2) variables (e.g., individual differences in conformity to feminine norms) are included in attempts to explain variance in the within-in person effects. Specifically, a series of two-level random coefficient models were constructed.

Interpersonal Objectification Influencing Self-Objectification

First, whether fluctuations in the frequency of daily objectification experiences were associated with daily levels of self-objectification was examined (Hypothesis 2). Mean levels of daily self-objectification, the amount of daily objectification experiences, and their associations with conformity to feminine norms were modeled through a series a random-intercept models. A random-intercept model in which person *i*'s daily average level of self-objectification at time *t*, was modeled by an intercept (π_{0i}) and a residual (e_{ti}), as outlined in Equation 3.1. In this model, the intercept (π_{0i}) represents person *i*'s mean level of self-objectification across the 14 days of the EMA portion of the study. The residual in this equation (e_{ti}) represents how much person *i*'s level of self-objectification at time *t* deviates from her average level. Any variable with the subscript of *i*, can vary between-persons. Between-person variability in the intercept (π_{0i}) was treated as an

outcome and modeled by a fixed intercept (β_{00}) reflecting the grand mean level of self-objectification, as well as a fixed slope (r_{0i}), reflecting each person *i*'s deviation from the grand mean level of self-objectification. The random-intercept model reveals the Intraclass Correlation (ICC) which acts as an effect size for constant person dependency; an ICC of 0 indicates all variance is within-persons, while an ICC of 1 indicates all variance is between-persons. In longitudinal designs with repeated measures, ICCs commonly exceed .40.

Equation 3.1. Random-intercept model of self-objectification

Level 1: $Self\text{-}Objectification_{ti} = \pi_{0i} + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

Next, a random-slope model (Equation 3.2) was examined to assess whether there was a systematic pattern of change in self-objectification across the 14 days of the EMA portion of the study. As is customary in growth curve analytic techniques, time (centered at day 1) was included as a Level 1 covariate.

Equation 3.2. Random-slope model of self-objectification

Level 1: $Self\text{-}Objectification_{ti} = \pi_{0i} + \pi_{1i}(\text{Day}) + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

$\pi_{1i} = \beta_{10} + r_{1i}$

Then, to examine whether changes in daily objectification experiences (denoted as $\text{Objectification}_{ti}$) were associated with daily changes in self-objectification, the multilevel model in Equation 3.3 was tested. The time-varying covariate, $\text{Objectification}_{ti}$, was group-centered at Level 1; in other words, the quantity of daily objectification experiences was centered using the unique means of person *i* on day *t*. Here, the primary parameter of interest (β_{20}) represents the degree to which fluctuation in

daily objectification experiences are associated with fluctuation in same-day self-objectification, above and beyond change in self-objectification explained by time.

Equation 3.3. Level 1 predictor model of self-objectification

Level 1: $Self\text{-}Objectification_{ti} = \pi_{0i} + \pi_{1i}(\text{Day})\ \pi_{2i}(\text{Objectification}_{ti}) + e_{ti}$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

$\pi_{1i} = \beta_{10} + r_{1i}$

$\pi_{2i} = \beta_{20} + r_{2i}$

In attempts to address questions regarding causality, a series of similar structured MLM models were conducted to examine the independent effects of objectification experiences and objectification perceptions on self-objectification levels a day later. Within these models, the outcomes were shifted t+1; meaning the relation was examined between predictors on day t and outcomes on day t+1, which is one day later.

College student sample. The random-intercept model (Equation 3.1) revealed an ICC of .66, suggesting that 66% of the total variation was between-persons (i.e., individual differences in mean self-objectification over time), whereas 34% was within-persons (i.e., time-specific deviations of daily fluctuations about one's usual level). The random-intercept model revealed that the average level of self-objectification—the extent to which participants reported thinking about how they look to other people) across the 14 days for the 88 college women was 24.22 (on a scale of 0 = *not at all* – 100 = very much). Moreover, women's self-objectification levels varied randomly across participants, $\chi^2(86) = 2374.09$, $p < .001$. Adding time to the model as a Level 1 predictor (Equation 3.2) revealed a better fitting model, $\chi^2(3) = 159.29$, $p < .001$, and that the passage of time explained 22% of the within-person variance. On average, women reported a lower level of self-objectification (26.32 on a 0-100 scale) at the onset of the

study; however, there was variability in the women's self-objectification at day 1, $\chi^2(86) = 891.59$, $p < .001$. Additionally, self-objectification levels on average decreased by .33 units per day, $t(86) = -1.97$, $p = .05$. This finding suggests that simply being in the study diminished women's self-objectification over time, the possibility of the surveys acting as interventions is considered within the discussion. Even though average daily self-objectification levels decreased over time, on average there was significant between-person variability in this rate of change, $\chi^2(86) = 392.86$, $p < .001$, suggesting that linear trajectories randomly vary across participants. A moderate negative association between day 1 levels of self-objectification and linear change in self-objectification ($r = -.24$) emerged, meaning that women who started the study with higher levels of self-objectification reported more decline in self-objectification over time than women with average day 1 levels.

Results from models used to test Hypothesis 2 that experiences of objectification were expected to increase self-objectification, can be found in Table 3.3. Objectification experiences were then included in the model as a Level 1 predictor (Equation 3.3). Consistent with hypotheses, more experiences of objectification in a day predicted more self-objectification that day. Specifically, the model revealed that more objectification experiences were associated with 3.35 unit same-day deviation from average trajectories of self-objectification. Meaning that to the extent that women experienced more objectification across 14 days, self-objectification increased at a rate faster than would be expected simply as a function of time $t(86) = 7.03$, $p < .001$. Importantly, the association between objectifying experiences and self-objectification varied across participants, $\chi^2(77) = 116.83$, $p = .003$. Although objectification experiences had a significant effect

on same-day levels of self-objectification, this effect did not carry-over into the next day, $t(86) = 0.54$, $p = .59$.[14]

Table 3.3. GCA Results: Interpersonal objectification predicting self-objectification

Self-objectification Predicted by Objectification Experiences (L1)					
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value
Intercept, π_0					
β_{00}	25.19	1.91	13.20	86	< .001**
Time slope, π_1					
β_{10}	-0.15	0.17	-0.93	86	.36
Objectification slope, π_2					
β_{20}	**3.35**	**0.48**	**7.03**	**86**	**< .001****
Self-objectification Predicted by Day Prior Objectification Experiences (L1)					
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value
Intercept, π_0					
β_{00}	24.73	2.03	12.18	86	<.001**
Time slope, π_1					
β_{10}	-0.17	0.19	-0.92	86	.36
Objectification slope, π_2					
β_{20}	**0.23**	**0.42**	**0.54**	**86**	**.59**

Note. Coeff. = unstandardized coefficients for all fixed parameters. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily frequencies of objectification experiences and self-objectification, are bolded.

High school sample. The random-intercept model (Equation 3.1) revealed an ICC value of .41, meaning that 41% of the total variation is between-persons (i.e., individual differences in mean self-objectification over time), whereas 59% was within-persons (i.e., time-specific deviations of daily fluctuations about one's usual level). The average level of self-objectification for high school girls during this study was 25.89 (on a scale of 0 = *not at all* – 100 = very much). Moreover, girls' self-objectification levels varied randomly across participants, $\chi^2(39) = 802.54$, $p < .001$. When time was added to the model as a Level 1 predictor (Equation 3.2), the passage of time explained 26% of the

[14] I also examined the effect of objectification perceptions on daily self-objectification. Objectification perceptions were unrelated to same-day levels of self-objectification, $t(235) = 0.50$, $p = .62$, as well as self-objectification levels a day later, $t(75) = 0.28$, $p = .78$.

within-person variance. On average, girls began the study with an average level of self-objectification of 30.52 (on a 0-100 scale), but there was significant between-person variability in day 1 levels of self-objectification, $\chi^2(39) = 409.25$, $p < .001$. Girls' self-objectification levels on average decreased by .74 units per day, $t(39) = -2.83$, $p = .007$, but significant between-person variability in this rate of change, $\chi^2(39) = 188.51$, $p < .001$, suggests that linear trajectories randomly varied across participants. A moderate negative association between day 1 levels of self-objectification and linear change in self-objectification ($r = -.46$) emerged, meaning that women who started the study with higher levels of self-objectification reported more decline in self-objectification over time than women with average day 1 levels.

To examine whether more objectification experiences predicted more self-objectification (Hypothesis 2), objectification experiences were included in the model as a Level 1 predictor (Equation 3.3; Table 3.4). A comparison of objectification experiences as a fixed effect versus a random effect revealed that there was no support for keeping the random effect in predicting same-day, $\chi^2(3) = 3.08$, $p = .38$, and day later, $\chi^2(3) = 0.50$, $p > .50$, self-objectification (meaning the Level 2 models do not include r_{2i}). This comparison suggests that objectification experiences have a similar effect on self-objectification for all girls. Consistent with hypotheses, more objectifying experiences in a day predicted more same-day self-objectification for high school girls. In particular, experiencing more objectification in a day was associated with 2.67 unit same-day deviations of self-objectification. Consistent with hypotheses, to the extent that girls' experiences of objectification increased across the 14 days, self-objectification increased at a faster rate than would be expected simply as a function of passing time, $t(465) =$

5.40, $p < .001$. Moreover, the association between experiencing objectification and same-day self-objectification varied across participants (L2 units), $\chi^2(39) = 189.44$, $p < .001$. But, objectification experiences did not significantly predict high school girls' self-objectification a day later, $t(425) = 0.50$, $p = .70$.[15]

Table 3.4. GCA Results: Objectification experiences predicting self-objectification

Self-objectification Predicted by Objectification Experiences (L1)					
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value
Intercept, π_0					
β_{00}	29.14	2.79	10.44	39	< .001
Time slope, π_1					
β_{10}	-0.52	0.25	-2.04	39	.049
Objectification slope, π_2					
β_{20}	**2.67**	**0.50**	**5.40**	**465**	**< .001**
Self-objectification Predicted by Perceptions of Objectification (L1)					
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value
Intercept, π_0					
β_{00}	27.81	2.78	9.99	39	<.001**
Time slope, π_1					
β_{10}	-0.48	0.27	-1.79	39	.08
Perception slope, π_2					
β_{20}	**0.19**	**0.50**	**0.39**	**425**	**.70**

Note. Coeff. = unstandardized coefficients for all fixed parameters. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily frequencies of objectification experiences and self-objectification, are bolded.

Objectification Influencing Goals

Next, MLM was used to assess whether changes in daily experiences of objectification and engaging in self-objectification were associated with the likelihood of having fewer STEM (Hypotheses 1a and 3a), more feminine (Hypotheses 1b and 3b), and more feminine education (Hypotheses 1c and 3c) goals. As noted in the method section, participants' daily goals were coded for whether a STEM, feminine, and feminine

[15] Objectification perceptions were examined as a predictor of self-objectification. Perceptions were unrelated to same-day, $t(24) = -0.42$, $p = .68$, and day later, $t(16) = -0.76$, $p = .46$, self-objectification levels.

educational goal (independently) was reported that day (0 = goal not present, 1 = goal present). Again, a series of random-intercept models were used; however, the binary goal outcome resulted in slightly different models. Changing the distribution to fit the binary outcome means reliance upon a Bernoulli distribution in which models predict the "log odds" of having a goal rather than raw scores as done with continuous outcomes. First, a random-intercept model in which person *i*'s odds of reporting a goal (STEM, feminine, or feminine educational denoted by the generic term $Goal_{ti}$ below) at time *t*, was modeled as in Equation 3.5.

Equation 3.4. Binary outcome random-intercept model

Level 1: $\text{Prob}(Goal_{ti} = 1|\pi_i) = \phi_{ti}$

$$\log[\phi_{ti} / (1-\phi_{ti})] = \eta_{ti}$$

$$\eta_{ti} = \pi_{0i}$$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

The random-intercept model was then compared to a random-slope model (Equation 3.6 below) to assess whether there was systematic change over time (centered at day 1).

Equation 3.5. Binary outcome random-slope model

Level 1: $\text{Prob}(Goal_{ti} = 1|\pi_i) = \phi_{ti}$

$$\log[\phi_{ti} / (1-\phi_{ti})] = \eta_{ti}$$

$$\eta_{ti} = \pi_{0i} + \pi_{1i}*(\text{Day}_{ti})$$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

Then, to examine whether changes in daily objectification experiences and self-objectification (denoted as the generic term $\text{Objectification}_{ti}$) were associated with the

likelihood of having a particular goal, $\text{Objectification}_{ti}$ was entered into the model as a Level 1 predictor in Equation 3.7.

Equation 3.6. Level 1 predictor model of goals

Level 1: $\text{Prob}(Goal_{ti} = 1|\pi_i) = \phi_{ti}$

$$\log[\phi_{ti} / (1-\phi_{ti})] = \eta_{ti}$$

$$\eta_{ti} = \pi_{0i} + \pi_{1i}*(\text{Day}_{ti}) + \pi_{1i}*(\text{Objectification}_{ti})$$

Level 2: $\pi_{0i} = \beta_{00} + r_{0i}$

$$\pi_{1i} = \beta_{10} + r_{1i}$$

$$\pi_{2i} = \beta_{20} + r_{2i}$$

Finally, the MLM depicted in Equation 3.7 was developed to examine whether women's conformity to feminine norms moderated the effect of fluctuations in women's daily experiences of objectification and engagement in self-objectification on the likelihood of having a particular goal. By including a Level 2 predictor in π_{0i}, π_{1i}, and π_{2i}, the potential moderating effect of conformity to feminine norms can be examined. Inclusion of this Level 2 predictor in π_{0i} reveals whether the likelihood of a goal at day 1 varies as a function of conformity to feminine norms, whereas inclusion of this Level 2 predictor at π_{1i} reveals whether the daily rate of change in probability of a goal varies as a function of conformity to feminine norms, and finally inclusion of this Level 2 predictor at π_{2i} reveals whether the strength of the association between changes in $\text{Objectification}_{ti}$ and changes in goal likelihood vary as a function of conformity to feminine norms (denoted as CFN_i).

Equation 3.7. Cross-level interaction model of goals

Level 1: $\text{Prob}(Goal_{ti} = 1|\pi_i) = \phi_{ti}$

$$\log[\phi_{ti} / (1-\phi_{ti})] = \eta_{ti}$$

$$\eta_{ti} = \pi_{0i} + \pi_{1i}*(\text{Day}_{ti}) + \pi_{1i}*(\text{Objectification}_{ti})$$

Level 2: $\pi_{0i} = \beta_{00} + \beta_{11}*(\text{CFN}_i) + r_{0i}$

$$\pi_{1i} = \beta_{10} + \beta_{11}*(\text{CFN}_i) + r_{1i}$$

$$\pi_{2i} = \beta_{20} + \beta_{21}*(\text{CFN}_i) + r_{2i}$$

In attempts to address questions regarding causality, MLM models were conducted to examine the independent effects of objectification experiences and self-objectification on goals a day later. To do so, these models relied upon shifted outcomes for t+1; the relation was examined between predictors on day t and outcomes a day later.

College Student Sample

STEM educational goals. The inclusion of a binary outcome variable requires relying on a logistic distribution, meaning there is no direct estimation of the residuals σ^2 on Level 1. A latent variable approach suggests that because the known logistic distribution variance is $\pi^2/3$, the ICC in this case is calculated as $\tau^2/(\tau^2 + \pi^2/3)$. The random-intercept model (Equation 3.4) revealed an ICC of .78, signifying that 78% of the total variation is between-persons (i.e., individual differences in the likelihood of having a STEM educational goal), whereas 22% was within-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a STEM educational goal). Adding time to the model as a Level 1 predictor (Equation 3.5) revealed no significant increase in the probability of having a STEM educational goal over the 14 days, $t(86) = 1.19$, $p = .24$; the odds of having a STEM educational goal is 1.02 times higher for each day that passes (almost a 1:1 ratio) meaning that women had about the same odds of having a STEM educational goal on any day as they did the following day.

STEM educational goals predicted by objectification. To examine whether experiencing interpersonal objectification was associated with a lessened likelihood of having a STEM educational goal (Hypothesis 1a; Table 3.5) objectification experiences were included as a Level 1 predictor (Equation 3.5). Comparing fixed and random effects revealed no support for keeping the random effect of objectification experiences in predicting same-day, $\chi^2(3) = 0.48$, $p > .50$, and day later, $\chi^2(3) = 0.28$, $p > .50$, STEM educational goals (the Level 2 models do not include r_{2i}); objectification experiences have similar effects on STEM educational goals for all women. Contrary to hypotheses, more objectification experiences were unrelated to same-day, $t(1029) = -0.41$, $p = .68$, or day later, $t(942) = 1.37$, $p = .17$, probability of having a STEM educational goal; the odds of having a STEM educational goal were the same regardless of the number of objectifying experiences in the same day and a day prior. Moreover, the cross-level interaction including conformity to feminine norms as a Level 2 predictor (Equation 3.7) revealed the association between objectification experiences and the likelihood of having STEM educational goal the same-day, $t(1028) = -0.58$, $p = .56$, or day later, $t(941) = 0.67$, $p = .50$, did not vary as a function of conformity to feminine norms.

Table 3.5. GCA Results: STEM educational goal predicted by objectification experiences

STEM Educational Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.25	0.23	-1.10	86	.28	0.78
Time slope, π_1						
β_{10}	0.02	0.02	0.99	86	.33	1.02
Objectification slope, π_2						
β_{20}	**-0.04**	**0.09**	**-0.41**	**1029**	**.68**	**0.96**
STEM Educational Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR

Intercept, π_0						
β_{00}	-0.24	0.22	-1.08	85	.28	0.78
β_{01} (CFNI)	0.01	0.78	0.02	85	.99	1.01
Time slope, π_1						
β_{10}	0.02	0.02	0.93	85	.35	1.02
β_{11} (CFNI)	0.12	0.07	1.83	85	.07	1.13
Objectification slope, π_2						
β_{20}	**-0.01**	**0.09**	**-0.15**	**1028**	**.88**	**0.99**
β_{21} (CFNI)	**-0.33**	**0.33**	**-1.00**	**1028**	**.32**	**0.72**
STEM Educational Goal Likelihood Predicted by Day Prior Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.43	0.21	-2.04	86	.05	0.65
Time slope, π_1						
β_{10}	0.05	0.02	2.52	86	.01*	1.05
Objectification slope, π_2						
β_{20}	**0.09**	**0.07**	**1.37**	**942**	**.17**	**1.10**
STEM Educational Goal Likelihood Predicted by Day Prior Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.42	0.21	-1.99	85	.05	0.66
β_{01} (CFNI)	-0.24	0.73	-0.32	85	.75	0.79
Time slope, π_1						
β_{10}	0.04	0.02	2.50	85	.01*	1.05
β_{11} (CFNI)	0.18	0.08	2.20	85	.03*	1.19
Objectification slope, π_2						
β_{20}	**0.08**	**0.07**	**1.10**	**941**	**.27**	**1.08**
β_{21} (CFNI)	**0.23**	**0.31**	**0.75**	**941**	**.45**	**1.26**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily frequencies of objectification experiences and STEM educational goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and STEM educational goals, which did not vary as a function of conformity to feminine norms.

STEM educational goals predicted by self-objectification. Next, whether self-objectification was related to a lessened likelihood of having a STEM educational goal (Hypothesis 3a) was examined by including self-objectification as a Level 1 predictor (Equation 3.6; Table 3.6). Models revealed a lack of support for keeping the random effect of self-objectification as a predictor of same-day, $\chi^2(3) = 0.10$, $p > .50$, and day

later, $\chi^2(3) = 0.02$, $p > .50$, STEM educational goals (the Level 2 models do not include r_{2i}); self-objectification had a similar effect on the likelihood of having a STEM educational goal across women. Consistent with hypotheses, more self-objectification in a day was related to a decreased probability of having a same-day STEM educational goal, $t(1029) = -2.48$, $p = .013$; for each unit increase in self-objectification, women were 2% less likely to have a STEM educational goal that day. Inclusion of a cross-level interaction with conformity to feminine norms as a Level 2 predictor (Equation 3.7) revealed that the association between self-objectification and same-day likelihood of having a STEM educational goal did not vary as a function of women's conformity to feminine norms, $t(1028) = -1.00$, $p = .32$. Yet, there was no relation between self-objectification and STEM educational goals a day later, $t(942) = 0.04$, $p = .97$, and this relation did not vary as a function of conformity to feminine norms, $t(941) = 0.56$, $p = .58$.

Table 3.6. GCA Results: STEM educational goal predicted by self-objectification

STEM Educational Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.22	0.22	-1.00	86	.32	0.80
Time slope, π_1						
β_{10}	0.01	0.02	0.81	86	.42	1.01
Objectification slope, π_2						
β_{20}	**-0.02**	**0.01**	**-2.50**	**1029**	**.013**	**0.98**
STEM Educational Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.21	0.22	-0.93	85	.36	0.81
β_{01} (CFNI)	0.06	0.79	0.08	85	.94	1.07
Time slope, π_1						
β_{10}	0.01	0.02	0.65	85	.52	1.01
β_{11} (CFNI)	0.12	0.07	1.76	85	.08	1.12
Objectification slope, π_2						

β_{20}	**-0.01**	**0.01**	**-2.33**	**1028**	**.02**	**0.99**
β_{21} (CFNI)	**-0.02**	**0.03**	**-0.58**	**1028**	**.56**	**0.98**
STEM Educational Goal Likelihood Predicted by Day Prior Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.40	0.21	-1.90	86	.06	0.67
Time slope, π_1						
β_{10}	0.04	0.02	2.26	86	.03*	1.04
Self-Obj. slope, π_2						
β_{20}	**0.0003**	**0.01**	**0.04**	**942**	**.97**	**1.00**
STEM Educational Goal Likelihood Predicted by Day Prior Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.40	0.21	-1.91	85	.06	0.67
β_{01} (CFNI)	-0.22	0.72	-0.31	85	.76	0.80
Time slope, π_1						
β_{10}	0.04	0.02	2.30	85	.02*	1.04
β_{11} (CFNI)	0.17	0.07	2.37	85	.02*	1.19
Self-Obj. slope, π_2						
β_{20}	**0.001**	**0.01**	**0.23**	**941**	**.82**	**1.00**
β_{21} (CFNI)	**0.01**	**0.03**	**0.56**	**941**	**.58**	**1.01**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily self-objectification and STEM educational goals, are bolded. The bottom line in the tables represents the association between daily self-objectification and STEM educational goals, which did not vary as a function of conformity to feminine norms.

Feminine goals. The random-intercept model (Equation 3.4) revealed that 32% of the total variance for feminine goals was between-persons (i.e., individual difference is the likelihood of having a feminine goal) and 68% of the total variance was with-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a feminine goal). Including time as a Level 1 predictor (Equation 3.5) showed a significant decrease in the probability of having a feminine goal over the 14-day study, $t(86) = -3.69$, $p < .001$; participants were 6% less likely to report a feminine goal with each passing day in the study.

Feminine goals predicted by objectification. First, whether women were more likely to report a feminine goal when they experienced more objectification was examined (Hypothesis 1b; Table 3.7). Objectification experiences were included as a Level 1 predictor (Equation 3.6), revealing a lack of support for objectification experiences as a random effect on same-day, $\chi^2(3) = 0.06$, $p > .50$, and day later, $\chi^2(3) = 0.10$, $p > .50$, likelihood of having a feminine goal (the Level 2 models does not include r_{2i}). In other words, objectification experiences had a similar association with feminine goals across women. Consistent with hypotheses, more objectifying experiences were associated with an increased likelihood of having a feminine goal, $t(83) = 2.51$, $p = .014$; with each additional experience of interpersonal objectification in a day, women are 20% more likely to report a feminine goal that day. Yet, inconsistent with hypotheses, including a cross-level interaction (Equation 3.8) revealed the relation between objectification experiences and likelihood of having a feminine goal did not vary as a function of conformity to feminine norms, $t(82) = -0.06$, $p = .96$. Moreover, objectification experiences did not significantly predict day later likelihood of having a feminine goal, $t(942) = 1.45$, $p = .15$, and this relation did not vary as a function of conformity to feminine norms, $t(941) = 0.91$, $p = .37$.

Table 3.7. GCA Results: Feminine goal predicted by objectification experiences

Feminine Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.09	0.17	-0.56	83	.58	0.91
Time slope, π_1						
β_{10}	-0.05	0.02	-2.95	83	.004	0.95
Objectification slope, π_2						
β_{20}	**0.18**	**0.07**	**2.51**	**83**	**.014**	**1.20**
Feminine Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR

Intercept, π_0						
β_{00}	-0.09	0.17	-0.56	82	.58	0.91
β_{01} (CFNI)	-0.15	0.60	-0.24	82	.81	0.86
Time slope, π_1						
β_{10}	-0.05	0.02	-2.92	82	.005	0.95
β_{11} (CFNI)	0.02	0.06	0.39	82	.70	1.02
Objectification slope, π_2						
β_{20}	**0.18**	**0.07**	**2.46**	**82**	**.016**	**1.20**
β_{21} (CFNI)	**-0.02**	**0.28**	**-0.06**	**82**	**.96**	**0.98**
Feminine Goal Likelihood Predicted by Day Prior Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.12	0.16	-0.75	86	.46	0.88
Time slope, π_1						
β_{10}	-0.05	0.02	-2.91	86	.005*	0.95
Objectification slope, π_2						
β_{20}	**0.09**	**0.06**	**1.45**	**942**	**.15**	**1.09**
Feminine Goal Likelihood Predicted by Day Prior Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.12	0.17	-0.75	85	.46	0.88
β_{01} (CFNI)	-0.47	0.65	-0.72	85	.48	0.63
Time slope, π_1						
β_{10}	-0.05	0.02	-2.86	85	.005*	0.95
β_{11} (CFNI)	0.05	0.06	0.72	85	.47	1.05
Objectification slope, π_2						
β_{20}	**0.08**	**0.06**	**1.38**	**941**	**.17**	**1.09**
β_{21} (CFNI)	**0.19**	**0.21**	**0.91**	**941**	**.37**	**1.21**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and feminine goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and feminine goals, which did not vary as a function of conformity to feminine norms.

Feminine goals predicted by self-objectification. Then, whether engaging in a high amount of self-objectification was related to an increased likelihood of having a feminine goal was examined (Hypothesis 3b; Table 3.8). Self-objectification was included as a Level 1 predictor (Equation 3.6), revealing an increase in the likelihood of having a feminine goal as self-objectification levels increase, though this effect did not

reach conventional levels of significance, $t(83) = 1.79$, $p = .076$. This trend suggests that for each unit increase in self-objectification women are 1% more likely to have a feminine goal that day. Consistent with hypotheses, a cross-level interaction (Equation 3.7) revealed the association between self-objectification in a day and the likelihood of having a feminine goal varied as a function of women's conformity to feminine norms, $t(82) = 2.06$, $p = .04$. As expected, for women high in conformity to feminine norms (one standard deviation above the mean, scores 3.04 and higher), engaging in high levels of self-objectification was associated with a higher likelihood of having a feminine goal (simple slope = 0.01, $z = 2.88$, $p = .004$), whereas for women low in conformity to feminine norms (one standard deviation below the mean, scores 2.48 or less), high levels of self-objectification was unrelated to having a feminine goal (simple slope = -0.04, $z = 0.44$, $p = .66$). Examining the effect of self-objectification on day later likelihood of having a feminine goal revealed a lack of support for the random effect of self-objectification, $\chi^2(3) = 0.92$, $p > .50$, meaning self-objectification had a similar effect on day later feminine goals across all women. Self-objectification did not significantly affect likelihood of having a feminine goal a day later, $t(942) = 0.80$, $p = .42$, and this relation did not vary as a function of women's conformity to feminine norms, $t(941) = 1.48$, $p = .14$; meaning the effect of self-objectification on feminine goals does not carry over into the following day.

Table 3.8. GCA Results: Feminine goal predicted by self-objectification

Feminine Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.07	0.18	-0.39	83	.69	0.93
Time slope, π_1						
β_{10}	-0.05	0.02	-3.15	83	.002	0.95
Self-obj. slope, π_2						

β_{20}	**0.01**	**0.01**	**1.79**	**83**	**.076**	**1.01**
Feminine Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.10	0.18	-0.56	82	.58	0.91
β_{01} (CFNI)	-0.47	0.64	-0.74	82	.47	0.62
Time slope, π_1						
β_{10}	-0.05	0.02	-2.98	82	.004	0.95
β_{11} (CFNI)	0.07	0.05	1.34	82	.18	1.07
Self-obj.slope, π_2						
β_{20}	**0.01**	**0.01**	**1.83**	**82**	**.07**	**1.01**
β_{21} (CFNI)	**0.05**	**0.02**	**2.06**	**82**	**.04***	**1.05**
Feminine Goal Likelihood Predicted by Day Prior Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.11	0.17	-0.64	86	.53	0.90
Time slope, π_1						
β_{10}	-0.06	0.02	-3.13	86	.002*	0.94
Self-Obj. slope, π_2						
β_{20}	**0.01**	**0.01**	**0.80**	**942**	**.42**	**1.01**
Feminine Goal Likelihood Predicted by Day Prior Self- Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.12	0.17	-0.74	85	.46	0.88
β_{01} (CFNI)	-0.56	0.65	-0.86	85	.39	0.57
Time slope, π_1						
β_{10}	-0.05	0.02	-2.97	85	.004*	0.95
β_{11} (CFNI)	0.06	0.06	1.02	85	.31	1.06
Self-Obj. slope, π_2						
β_{20}	**0.01**	**0.01**	**0.84**	**941**	**.40**	**1.01**
β_{21} (CFNI)	**0.03**	**0.02**	**1.48**	**941**	**.14**	**1.03**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily self-objectification and feminine goals, are bolded. The bottom line in the tables represents the association between daily self-objectification and feminine goals, which did not vary as a function of conformity to feminine norms.

Feminine educational goals. According to the random intercept model (Equation 3.4), 45% of the total variation was between-persons (i.e., individual differences in the likelihood of having a feminine educational goal) and 55% of the total variation was

within-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a feminine educational goal). The inclusion of time as a Level 1 predictor (Equation 3.5) revealed that women had a similar probability of having a feminine educational goal over the 14 days, $t(83) = 0.12$, $p = .90$.

Feminine educational goals predicted by objectification. Next, whether experiencing more interpersonal objectification was related to an increased likelihood of reporting a feminine educational goal was examined (Hypothesis 1c; Table 3.9). Similar to the process with the other outcomes, objectification experiences and self-objectification were added to separate models as Level 1 predictors (Equation 3.6). There was a lack of support for keeping a random effect of objectification experiences in predicting same-day, $\chi^2(3) = 5.75$, $p = .12$, and day later, $\chi^2(3) = 0.53$, $p > .50$, feminine educational goals (Level 2 models do not include r_{2i}); meaning the effect of objectification experiences on feminine educational goals were consistent across women. Contrary to hypotheses, more objectification experiences were not associated with an increased likelihood of having feminine educational goal on the same, $t(1029) = -0.62$, $p = .54$, or following, $t(942) = -0.21$, $p = .83$, day. Moreover, a cross-level interaction (Equation 3.7) revealed the effect of objectification on likelihood of having a same-day, $t(1028) = 0.29$, $p = .77$, or day later, $t(941) = 0.31$, $p = .76$, feminine educational goal did not vary as a function of women's conformity to feminine norms.

Table 3.9. GCA Results: Feminine educational goal predicted by objectification experiences

Feminine Educational Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.13	0.21	-5.41	86	<.001	0.32
Time slope, π_1						

β_{10}	0.001	0.02	0.06	86	.95	1.00
Objectification slope, π_2						
β_{20}	**-0.06**	**0.10**	**-0.62**	**1029**	**.54**	**0.94**

Feminine Educational Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)

Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.13	0.21	-5.40	85	<.001	0.32
β_{01} (CFNI)	0.46	0.68	0.67	85	.50	1.58
Time slope, π_1						
β_{10}	0.001	0.02	0.06	85	.96	1.00
β_{11} (CFNI)	-0.05	0.09	-0.60	85	.55	0.95
Objectification slope, π_2						
β_{20}	**-0.06**	**0.09**	**-0.63**	**1028**	**.53**	**0.94**
β_{21} (CFNI)	**0.09**	**0.31**	**0.30**	**1028**	**.77**	**1.10**

Feminine Educational Goal Likelihood Predicted by Prior Day Objectification Experiences (L1)

Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.23	0.21	-5.91	86	<.001**	0.29
Time slope, π_1						
β_{10}	0.02	0.02	0.68	86	.50	1.02
Objectification slope, π_2						
β_{20}	**-0.01**	**0.07**	**-0.21**	**942**	**.83**	**0.99**

Feminine Educational Goal Likelihood Predicted by Prior Day Objectification Experiences (L1) and CFNI (L2)

Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.24	0.21	-5.95	85	<.001**	0.29
β_{01} (CFNI)	0.86	0.64	1.33	85	.19	2.35
Time slope, π_1						
β_{10}	0.02	0.02	0.69	85	.49	1.02
β_{11} (CFNI)	-0.11	0.08	-1.43	85	.16	0.90
Objectification slope, π_2						
β_{20}	**-0.01**	**0.07**	**-0.19**	**941**	**.85**	**0.99**
β_{21} (CFNI)	**-0.01**	**0.24**	**-0.05**	**941**	**.96**	**0.99**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and feminine educational goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and feminine educational goals, which did not vary as a function of conformity to feminine norms.

Feminine educational goals predicted by self-objectification. As an examination of the hypothesis that engaging in more self-objectification was related to an increased

likelihood of having a feminine educational goal (Hypothesis 3c), self-objectification was included as a Level 1 predictor (Equation 3.6; Table 3.10). There was a lack of support for keeping a random effect of self-objectification as a predictor of same-day, $\chi^2(3) = 0.61$, $p > .50$, and day later, $\chi^2(3) = 4.61$, $p = .20$ (Level 2 models do not include r_{2i}) feminine educational goals; self-objectification has a similar effect on feminine educational goals across women. Inconsistent with hypotheses, self-objectification was only marginally related to same-day feminine educational goals, $t(1029) = -1.85$, $p = .064$. Yet, this effect was in an unexpected direction; each unit increase in self-objectification for women was related to a 2% decrease in likelihood of having a feminine educational goal that day. Yet, self-objectification was not associated with likelihood of having a feminine educational goal a day later, $t(942) = 0.01$, $p = .99$. Moreover, the relation between self-objectification and likelihood of having a feminine educational goal that day, $t(1028) = -0.12$, $p = .90$, and a day later, $t(941) = 1.38$, $p = .17$, did not vary as a function of women's conformity to feminine norms (Equation 3.7).

Table 3.10. GCA Results: Feminine educational goal predicted by self-objectification

Feminine Educational Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.13	0.21	-5.51	86	<.001**	0.32
Time slope, π_1						
β_{10}	0.001	0.02	0.06	86	.95	1.00
Self-Obj. slope, π_2						
β_{20}	**-0.01**	**0.01**	**-1.85**	**1029**	**.06**	**0.98**
Feminine Educational Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.13	0.21	-5.52	85	<.001**	0.32
β_{01} (CFNI)	0.60	0.64	0.93	85	.36	1.82
Time slope, π_1						

β_{10}	0.0001	0.02	0.03	85	.97	1.00
β_{11} (CFNI)	-0.07	0.08	-0.91	85	.37	0.93
Self-Obj. slope, π_2						
β_{20}	**-0.01**	**0.01**	**-2.00**	**1028**	**.045***	**0.99**
β_{21} (CFNI)	**-0.002**	**0.02**	**-0.12**	**1028**	**.90**	**1.00**
Feminine Educational Goal Likelihood Predicted by Day Prior Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.24	0.21	-5.85	86	<.001**	0.29
Time slope, π_1						
β_{10}	0.02	0.02	0.71	86	.48	1.02
Self-Obj. slope, π_2						
β_{20}	**0.0001**	**0.01**	**0.01**	**942**	**.99**	**1.00**
Feminine Educational Goal Likelihood Predicted by Day Prior Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-1.26	0.21	-5.92	85	<.001**	0.28
β_{01} (CFNI)	0.75	0.67	1.12	85	.27	2.11
Time slope, π_1						
β_{10}	0.02	0.02	0.83	85	.41	1.02
β_{11} (CFNI)	-0.09	0.08	-1.12	85	.27	0.91
Self-Obj. slope, π_2						
β_{20}	**-0.0002**	**0.01**	**-0.04**	**941**	**.97**	**1.00**
β_{21} (CFNI)	**0.02**	**0.02**	**1.38**	**941**	**.17**	**1.02**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily self-objectification and feminine educational goals, are bolded. The bottom line in the tables represents the association between daily self-objectification and feminine educational goals, which did not vary as a function of conformity to feminine norms.

High School Sample

STEM educational goals. The random-intercept model (Equation 3.4) revealed an ICC of .34, signifying that 34% of the total variation was between-persons (i.e., individual differences in the likelihood of having a STEM educational goal), whereas 66% was within-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a STEM educational goal). Adding time to the model as a

Level 1 predictor (Equation 3.5) revealed that there was no significant increase in the probability of having a STEM educational goal over the 14 days, $t(39) = 0.02$, $p = .99$.

STEM educational goals predicted by objectification. The hypothesized effect of objectification experiences increasing the probability of girls having a STEM educational goal (Hypothesis 1a) was examined by including the quantity of objectifying experiences as a Level 1 predictor (Equation 3.6; Table 3.11). Comparing fixed and random effects revealed that there was no support for keeping the random effect of objectification experiences in predicting same-day, $\chi^2(3) = 4.12$, $p = .25$, or day later, $\chi^2(3) = 0.59$, $p > .50$ (Level 2 models do not include r_{2i}) STEM educational goals; objectification experiences had similar effects across girls. Contrary to hypotheses, more objectification experiences were not significantly associated with a decreased probability of having a STEM educational goal that same day, $t(465) = 0.79$, $p = .43$, or the following day $t(425) = 1.22$, $p = .22$. Furthermore, a model including a cross-level interaction (Equation 3.7) revealed the association between objectification experiences and STEM educational goals in the same-day, $t(464) = 0.09$, $p = .93$, and a day later, $t(424) = -0.15$, $p = .88$, did not vary as a function of girls' conformity to feminine norms.

Table 3.11. GCA Results: STEM educational goal predicted by objectification experiences

STEM Educational Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.18	0.20	-0.90	39	.37	0.84
Time slope, π_1						
β_{10}	0.01	0.02	0.34	39	.74	1.01
Objectification slope, π_2						
β_{20}	**0.08**	**0.10**	**0.79**	**465**	**.43**	**1.08**
STEM Educational Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR

Intercept, π_0						
β_{00}	-0.18	0.20	-0.91	38	.37	0.84
β_{01} (CFNI)	0.32	0.77	0.41	38	.68	1.38
Time slope, π_1						
β_{10}	0.01	0.02	0.38	38	.71	1.01
β_{11} (CFNI)	0.09	0.07	1.34	38	.19	1.10
Objectification slope, π_2						
β_{20}	**0.08**	**0.10**	**0.81**	**464**	**.42**	**1.08**
β_{21} (CFNI)	**0.03**	**0.35**	**0.09**	**464**	**.93**	**1.03**
STEM Educational Goal Likelihood Predicted by Prior Day Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.26	0.19	-1.34	39	.19	0.77
Time slope, π_1						
β_{10}	0.02	0.02	0.75	39	.46	1.02
Objectification slope, π_2						
β_{20}	**0.08**	**0.06**	**1.22**	**425**	**.22**	**1.08**
STEM Educational Goal Likelihood Predicted by Prior Day Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.26	0.19	-1.35	38	.19	0.77
β_{01} (CFNI)	0.20	0.70	0.28	38	.78	1.22
Time slope, π_1						
β_{10}	0.02	0.02	0.80	38	.43	1.02
β_{11} (CFNI)	0.11	0.07	1.57	38	.12	1.12
Objectification slope, π_2						
β_{20}	**0.08**	**0.06**	**1.33**	**424**	**.19**	**1.09**
β_{21} (CFNI)	**-0.05**	**0.36**	**-0.15**	**424**	**.88**	**0.95**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and STEM educational goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and STEM educational goals, which did not vary as a function of conformity to feminine norms.

STEM educational goals predicted by self-objectification. Next, whether engaging in more self-objectification diminished the likelihood of girls reporting a STEM educational goal was examined (Hypothesis 3a; Table 3.12). Including self-objectification as a Level 1 predictor (Equation 3.6) revealed a lack of support for keeping the random effect in predicting same-day, $\chi^2(3) = 0.12$, $p > .50$, and the

following day, $\chi^2(3) = 0.06$, $p > .50$, STEM educational goals (Level 2 models do not include r_{2i}); self-objectification had a similar effect on the likelihood of having a STEM educational goal for all girls. Inconsistent with hypotheses, self-objectification was not significantly associated with same-day likelihood, $t(465) = 0.53$, $p = .60$, or day later likelihood, $t(425) = 0.32$, $p = .75$, of having a STEM educational goal. Moreover, inclusion of conformity to feminine norms as a cross-level interaction (Equation 3.7) revealed the association between self-objectification and same-day, $t(464) = -0.04$, $p = .97$, as well as a day later, $t(424) = 0.14$, $p = .89$, STEM educational goals did not vary as a function of girls' conformity to feminine norms.

Table 3.12. GCA Results: STEM educational goal predicted by self-objectification

STEM Educational Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.15	0.19	-0.79	39	.43	0.86
Time slope, π_1						
β_{10}	0.004	0.02	0.16	39	.87	1.00
Self-Obj. slope, π_2						
β_{20}	**0.004**	**0.01**	**0.53**	**465**	**.60**	**1.00**
STEM Educational Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.15	0.19	-0.78	38	.44	0.86
β_{01} (CFNI)	0.40	0.71	0.56	38	.58	1.49
Time slope, π_1						
β_{10}	0.004	0.02	0.18	38	.86	1.00
β_{11} (CFNI)	0.08	0.06	1.27	38	.21	1.08
Self-Obj. slope, π_2						
β_{20}	**0.004**	**0.01**	**0.51**	**464**	**.61**	**1.00**
β_{21} (CFNI)	**-0.001**	**0.02**	**-0.04**	**464**	**.97**	**1.00**
STEM Educational Goal Likelihood Predicted by Prior Day Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.23	0.20	-1.17	39	.25	0.79
Time slope, π_1						

β_{10}	0.01	0.02	0.55	39	.59	1.01
Self-Obj. slope, π_2						
β_{20}	**0.003**	**0.01**	**0.32**	**425**	**.75**	**1.00**

STEM Educational Goal Predicted by Prior Day Self- Objectification (L1) and CFNI (L2)

Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.23	0.20	-1.17	38	.25	0.79
β_{01} (CFNI)	0.21	0.68	0.31	38	.76	1.23
Time slope, π_1						
β_{10}	0.01	0.02	0.56	38	.58	1.01
β_{11} (CFNI)	0.11	0.06	1.74	38	.09	1.12
Self-Obj. slope, π_2						
β_{20}	**0.003**	**0.01**	**0.28**	**424**	**.78**	**1.00**
β_{21} (CFNI)	**0.004**	**0.03**	**0.14**	**424**	**.89**	**1.00**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily self-objectification and STEM educational goals, are bolded. The bottom line in the tables represents the association between daily self-objectification and STEM educational goals, which did not vary as a function of conformity to feminine norms.

Feminine goals. The random-intercept model (Equation 3.4) revealed that 14% of the total variance was between-persons (i.e., individual difference is the likelihood of having a feminine goal) and 86% of the total variance was with-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a feminine goal). Including time as a Level 1 predictor (Equation 3.5) showed the likelihood of having a feminine goal significantly decreased over the 14-day study, $t(39) = -3.68$, $p < .001$; for each day that passed girls were 10% less likely to have a feminine goal.

Feminine goals predicted by objectification. To examine whether more experiences of interpersonal objectification were associated with an increased likelihood of reporting feminine goals (Hypothesis 1b; Table 3.13), objectification experiences were included as a Level 1 predictor (Equation 3.6). The random effect was not supported in the model with objectification as a predictor of same-day, $\chi^2(3) = 2.36$, $p > .50$, and day later, $\chi^2(3) = 5.93$, $p = .11$ (Level 2 models do not include r_{2i}), feminine goals, meaning

that objectification experiences had a similar effect on feminine goals across girls. Inconsistent with hypotheses, more objectification experiences were unrelated to girls' same-day, $t(465) = 0.93$, $p = .35$, and day later, $t(425) = 0.14$, $p = .89$, likelihood of having a feminine goal. Furthermore, the association between objectification experiences and likelihood of having a feminine goal did not vary as a function of women's conformity to feminine norms for same-day, $t(464) = 0.41$, $p = .68$, or day later, $t(424) = -0.47$, $p = .64$, goals (Equation 3.7).

Table 3.13. GCA Results: Feminine goal predicted by objectification experiences

Feminine Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.85	0.23	3.71	39	<.001**	2.33
Time slope, π_1						
β_{10}	-0.10	0.03	-3.54	39	.001**	0.91
Objectification slope, π_2						
β_{20}	**0.09**	**0.09**	**0.93**	**465**	**.35**	**1.09**
Feminine Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.86	0.22	3.80	38	<.001**	2.35
β_{01} (CFNI)	1.21	0.71	1.69	38	.10	3.34
Time slope, π_1						
β_{10}	-0.10	0.03	-3.64	38	<.001**	0.90
β_{11} (CFNI)	-0.21	0.09	-2.30	38	.03*	0.81
Objectification slope, π_2						
β_{20}	**0.08**	**0.09**	**0.85**	**464**	**.40**	**1.08**
β_{21} (CFNI)	**0.22**	**0.53**	**0.41**	**464**	**.68**	**1.25**
Feminine Goal Likelihood Predicted by Day Prior Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.61	0.26	2.34	39	.02*	1.84
Time slope, π_1						
β_{10}	-0.08	0.04	-2.39	39	.02*	0.92
Objectification slope, π_2						
β_{20}	**0.01**	**0.09**	**0.14**	**425**	**.89**	**1.01**

Feminine Goal Likelihood Predicted by Day Prior Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.62	0.26	2.39	38	.02*	1.87
β_{01} (CFNI)	1.13	0.87	1.30	38	.20	3.08
Time slope, π_1						
β_{10}	-0.09	0.03	-2.52	38	.02*	0.92
β_{11} (CFNI)	-0.24	0.12	-2.04	38	.048*	0.79
Objectification slope, π_2						
β_{20}	**0.004**	**0.10**	**0.04**	**424**	**.97**	**1.00**
β_{21} (CFNI)	**-0.23**	**0.50**	**-0.47**	**424**	**.64**	**0.79**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and feminine goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and feminine goals, which did not vary as a function of conformity to feminine norms.

Feminine goals predicted by self-objectification. Then, whether engaging in more self-objectification was related to an increased likelihood of reporting a feminine goal was examined (Hypothesis 3b; Table 3.14). Similar to the lack of support for a random effect above, there was no support for a random effect of self-objectification in predicting same-day, $\chi^2(3) = 4.81$, $p = .18$, or day later, $\chi^2(3) = 1.51$, $p > .50$, feminine goals (Level 2 models do not include r_{2i}). This suggests that self-objectification has a similar effect on the likelihood of having a feminine goal across girls. Contrary to expectations, self-objectification was unrelated to changes in the likelihood of having a feminine goal on the same day, $t(465) = 0.72$, $p = .48$, as well as a day later, $t(425) = -1.36$, $p = .17$ (Equation 3.6). Moreover, the association between self-objectification and likelihood of having a feminine goal did not vary as a function of girls' conformity to feminine norms regardless of predicting goals of the same-day, $t(464) = 1.05$, $p = .30$, or following day, $t(424) = 0.58$, $p = .56$ (Equation 3.7).

Table 3.14. GCA Results: Feminine goal predicted by self-objectification

Feminine Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.86	0.23	3.74	39	<.001**	2.37
Time slope, π_1						
β_{10}	-0.10	0.03	-3.	69	<.001**	0.90
Self-Obj. slope, π_2						
β_{20}	**0.01**	**0.01**	**0.72**	**465**	**.48**	**1.01**
Feminine Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.90	0.23	3.92	38	<.001**	2.45
β_{01} (CFNI)	1.48	0.73	2.02	38	.05*	4.37
Time slope, π_1						
β_{10}	-0.11	0.03	-4.03	38	<.001**	0.90
β_{11} (CFNI)	-0.25	0.10	-2.57	38	.01*	0.78
Self-Obj. slope, π_2						
β_{20}	**0.005**	**0.01**	**0.57**	**464**	**.57**	**1.00**
β_{21} (CFNI)	**0.04**	**0.04**	**1.05**	**464**	**.30**	**1.04**
Feminine Goal Likelihood Predicted by Day Prior Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.67	0.25	2.67	39	.011*	1.95
Time slope, π_1						
β_{10}	-0.09	0.03	-2.80	39	.008*	0.91
Self-Obj. slope, π_2						
β_{20}	**-0.01**	**0.01**	**-1.36**	**425**	**.17**	**0.99**
Feminine Goal Predicted by Day Prior Self- Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	0.68	0.25	2.73	38	.009*	1.97
β_{01} (CFNI)	0.95	0.78	1.21	38	.23	2.58
Time slope, π_1						
β_{10}	-0.10	0.03	-2.94	38	.006*	0.01
β_{11} (CFNI)	-0.21	0.10	-2.02	38	.05*	0.81
Self-Obj. slope, π_2						
β_{20}	**-0.01**	**0.01**	**-1.42**	**424**	**.16**	**0.99**
β_{21} (CFNI)	**0.02**	**0.03**	**0.58**	**424**	**.56**	**1.02**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily self-objectification and feminine goals, are bolded. The bottom line in the tables represents the

association between daily self-objectification and feminine goals, which did not vary as a function of conformity to feminine norms.

Feminine educational goals. The random-intercept model (Equation 3.4) revealed that 26% of the total variance was between-persons (i.e., individual difference is the likelihood of having a feminine goal) and 74% of the total variance was with-persons (i.e., time-specific deviations of daily fluctuations about one's usual likelihood of having a feminine goal). Including time as a Level 1 predictor (Equation 3.6) showed the likelihood of having a feminine goal was consistent over the 14-day study, $t(39) = -0.48$, $p = .64$.

Feminine educational goals predicted by objectification. Then, whether experiencing more interpersonal objectification increased the likelihood of girls reporting a feminine educational goal was examined (Hypothesis 1c; Table 3.15). In addition to day as a Level 1 predictor, objectification was included as a Level 1 predictor (Equation 3.6). The random effect was not supported in the model with objectification as a predictor of same-day, $\chi^2(3) = 0.42$, $p > .50$, or day later, $\chi^2(3) = 0.18$, $p > .50$, feminine educational goals (Level 2 models do not include r_{2i}); objectification experiences had a similar effect on feminine educational goals across girls. Inconsistent with hypotheses, objectification experiences did not significantly predict the likelihood of having a same-day, $t(465) = -1.59$, $p = .11$, or day later, $t(425) = 0.34$, $p = .74$, feminine educational goal. Inclusion of conformity to feminine norms as a cross-level interaction (Equation 3.7) showed that the association between objectification experiences and the likelihood of having a feminine goal did not vary as a function of women's conformity to feminine norms, for goals in the same-day, $t(464) = -0.78$, $p = .43$, or a day later, $t(424) = -0.26$, $p = .80$.

Table 3.15. GCA Results: Feminine educational goal predicted by objectification experiences

Feminine Educational Goal Likelihood Predicted by Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.40	0.24	-1.63	39	.11	0.67
Time slope, π_1						
β_{10}	-0.02	0.03	-0.84	39	.41	0.98
Objectification slope, π_2						
β_{20}	**-0.13**	**0.08**	**-1.59**	**465**	**.11**	**0.88**
Feminine Educational Goal Likelihood Predicted by Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.39	0.24	-1.62	38	.11	0.67
β_{01} (CFNI)	-1.00	1.20	-0.83	38	.41	0.37
Time slope, π_1						
β_{10}	-0.02	0.03	-0.84	38	.41	0.98
β_{11} (CFNI)	0.16	0.12	1.40	38	.17	0.98
Objectification slope, π_2						
β_{20}	**-0.12**	**0.08**	**-1.45**	**464**	**.15**	**0.89**
β_{21} (CFNI)	**-0.30**	**0.39**	**-0.78**	**464**	**.43**	**0.74**
Feminine Educational Goal Likelihood Predicted by Day Prior Objectification Experiences (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.48	0.23	-2.09	39	.044*	0.62
Time slope, π_1						
β_{10}	-0.01	0.02	-0.45	39	.66	0.99
Objectification slope, π_2						
β_{20}	**0.03**	**0.09**	**0.34**	**425**	**.74**	**1.03**
Feminine Educational Goal Likelihood Predicted by Day Prior Objectification Experiences (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.48	0.23	-2.10	38	.04*	0.62
β_{01} (CFNI)	-0.67	1.06	-0.63	38	.53	0.51
Time slope, π_1						
β_{10}	-0.01	0.02	-0.41	38	.69	0.99
β_{11} (CFNI)	0.15	0.10	1.52	38	.14	1.16
Objectification slope, π_2						
β_{20}	**0.04**	**0.09**	**0.44**	**424**	**.66**	**1.04**
β_{21} (CFNI)	**-0.10**	**0.38**	**-0.26**	**424**	**.80**	**0.91**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and feminine educational goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and feminine educational goals, which did not vary as a function of conformity to feminine norms.

Feminine educational goals predicted by self-objectification. Finally, whether engaging in more self-objectification was related to an increased likelihood that girls had a feminine educational goal was examined (Hypothesis 3c; Table 3.16). The effect of self-objectification on same-day, $\chi^2(3) = 1.18$, $p > .50$, and day later, $\chi^2(3) = 0.18$, $p > .50$, feminine educational goals was consistent across girls (Level 2 models do not include r_{2i}). Inconsistent with hypotheses, more self-objectification was unrelated to changes in likelihood of having a feminine goal, on the same-day, $t(465) = -0.75$, $p = .45$, and a day later, $t(425) = 0.65$, $p = .51$ (Equation 3.6). Yet, the relation between self-objectification and likelihood of having a feminine educational goal did vary as a function of girls' conformity to feminine norms, $t(464) = -2.25$, $p = .025$ (Equation 3.7). Contrary to expectations, for girls high in conformity to feminine norms (one standard deviation above the mean, scores 3.02 and higher), engaging in more self-objectification was associated with a decreased likelihood of having a feminine educational goal (simple slope = -0.14, $z = 16.67$, $p < .001$), whereas for girls low in conformity to feminine norms (one standard deviation below the mean, scores 2.54 and lower), engaging in more self-objectification was associated with an increased likelihood of having a feminine educational goal (simple slope = 0.13, $z = 12.28$, $p < .001$). The relation between self-objectification and feminine educational goals a day later, however, did not vary as a function of conformity to feminine norms, $t(424) = -1.45$, $p = .15$.

Table 3.16. GCA Results: Feminine educational goal predicted by self-objectification

Feminine Educational Goal Likelihood Predicted by Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.43	0.23	-1.91	39	.06	0.65
Time slope, π_1						
β_{10}	-0.02	0.02	-0.69	39	.50	0.98
Self-Obj. slope, π_2						
β_{20}	**-0.01**	**0.01**	**-0.75**	**465**	**.45**	**0.99**
Feminine Educational Goal Likelihood Predicted by Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.47	0.23	-2.05	38	.047	0.63
β_{01} (CFNI)	-1.41	1.01	-1.39	38	.17	0.25
Time slope, π_1						
β_{10}	-0.01	0.02	-0.49	38	.63	0.99
β_{11} (CFNI)	0.22	0.07	3.14	38	.003	1.25
Self-Obj. slope, π_2						
β_{20}	**-0.003**	**0.01**	**-0.43**	**464**	**.67**	**1.00**
β_{21} (CFNI)	**-0.05**	**0.02**	**-2.25**	**464**	**.025**	**0.95**
Feminine Educational Goal Likelihood Predicted by Prior Day Self-Objectification (L1)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.49	0.22	-2.20	39	.03*	0.61
Time slope, π_1						
β_{10}	-0.01	0.02	-0.33	39	.74	0.99
Self-Obj. slope, π_2						
β_{20}	**0.01**	**0.01**	**0.65**	**425**	**.51**	**1.01**
Feminine Educational Goal Likelihood Predicted by Prior Day Self-Objectification (L1) and CFNI (L2)						
Fixed Effect	Coeff.	SE	*t*-ratio	*df*	*p*-value	OR
Intercept, π_0						
β_{00}	-0.53	0.23	-2.25	38	.03*	0.59
β_{01} (CFNI)	-0.72	1.08	-0.66	38	.51	0.49
Time slope, π_1						
β_{10}	-0.003	0.02	-0.11	38	.92	1.00
β_{11} (CFNI)	0.16	0.09	1.75	38	.09	1.17
Self-Obj. slope, π_2						
β_{20}	**0.01**	**0.01**	**1.11**	**424**	**.27**	**1.01**
β_{21} (CFNI)	**-0.06**	**0.04**	**-1.45**	**424**	**.15**	**0.94**

Note. Coeff. = unstandardized coefficients for all fixed parameters. OR = odds ratio. ** $p < .01$, * $p < .05$. The parameters of interest, representing the associations between daily objectification experiences and feminine educational goals, are bolded. The bottom line in the tables represents the association between daily objectification experiences and feminine educational goals, which did not vary as a function of conformity to feminine norms.

Chapter 4: Discussion

The current work provided the first test of my proposed model (see Figure 1.1, p. 14) of objectification experiences predicting the pursuit of goals in girls and young women based on a novel integration of objectification theory (Fredrickson & Roberts, 1997) and the social cognitive theory of agency (Bandura, 1989). Specifically, a simplified version of my model, suggesting that young women's experiences of objectification indirectly lead them away from pursuing goals in STEM domains due to self-objectification was tested. Moreover, conformity to feminine norms was explored as a potential moderator of these links (see Figure 1.2, p. 34). Given recent suggestions that educational experiences during young women's high school and college years contribute to the gender gap in STEM domains due to goal pursuit, the current studies examined how experiences of objectification may shape goals of both high school girls and college women.

Review of hypotheses

Hypothesis 1: Experiences of objectification predict goal pursuit. The current studies are the first known work to examine links between young women's experiences of interpersonal objectification and goals. Experiences of objectification were hypothesized to be associated with decreased STEM educational goal pursuit (Hypothesis 1a), increased feminine goal pursuit (Hypothesis 1b), and increased feminine educational goal pursuit (Hypothesis 1c), with the effects exacerbated among young women and girls with highly internalized feminine norms (Hypothesis 1d).

The only support for Hypothesis 1a, was that for college women and high school girls, not reporting any experiences of objectification during the entire two-week EMA

portion of the study was correlated with having more STEM educational goals during this time. More experiences of objectification during this time, however, were not related to fewer STEM educational goals. Interestingly, experiences of objectification measured in the moment of the EMA study did not predict STEM educational goals the same or a following day, for either high school girls or college women, and this relation was not moderated by conformity to feminine norms (Hypothesis 1d). Yet, for college women's self-reports in the baseline survey a different pattern emerged; a higher frequency of retrospectively reported objectification experiences in the past year was positively correlated with *more* interest in pursuing a STEM career. This relation did not emerge for high school girls. This finding suggests that experiencing objectification does not diminish the likelihood of having a STEM educational goal in the day it occurs, but that repeated objectification experiences may shape STEM educational goals over time.

Consistent with Hypothesis 1b, experiences of objectification were related to feminine goals. For college women in particular, experiencing more objectification in a day during the EMA portion of the study predicted a 20% increase in the likelihood of having an appearance, romantic relationship, or housework goal that day. Moreover, experiencing more total objectification experiences over the two-week EMA portion of the study was correlated with more total feminine goals across the two weeks. Interestingly, the same relation did not emerge for high school girls. During the two-week EMA portion of the study, high school girls reported marginally more total feminine goals than college women, $t(125) = 1.87$, $p = .06$; this was the only significant difference on goals between the two samples, so it is possible that regardless of high school girls' experiences of objectification they had consistently frequent feminine goals. The EMA

patterns of findings were mirrored in the trait measures; more experiences of objectification within the past two years were associated with more feminine goals for both college women and high school girls. The link between experiencing objectification and reporting feminine goals, however, was moderated by conformity to feminine norms. Unexpectedly and contrary to Hypothesis 1d, objectification experiences were only significantly associated with more feminine goal hope at low levels of conformity to feminine norms.

Contrary to Hypothesis 1c, there was no evidence that women or girls' experiences of objectification affected the likelihood of having feminine educational goals. Furthermore, contrary to Hypothesis 1d, the relation between objectification and feminine educational goals was not moderated by conformity to feminine norms.

Hypothesis 2: More objectification experiences predict greater self-objectification. Consistent with objectification theory (Fredrickson & Roberts, 1997) and a plethora of subsequent literature (for a review see Roberts et al., 2018), more experiences of objectification in a day was related to college women's and high school girls' same-day increased self-objectification. Moreover, more total experiences reported during the two-week EMA portion of the study were correlated with higher levels of self-objectification across that time period. This link was further supported with positive correlations between more objectification experiences and trait levels of self-objectification reported by college women and high school girls in the baseline survey.

Importantly, the original model included an examination of the role of perceptions of objectification played in predicting engagement in self-objectification. Contrary to expectations and previous work (Calogero et al., 2009), the relation between experiencing

objectification and engaging in self-objectification was not heightened for women when they perceived the experience as more complimentary. Instead, there was a correlation between more negative perceptions of objectification and more trait self-objectification for college women and high school girls. While this finding was unexpected, it is possible that specific types of experiences are perceived more negatively (e.g., negative commentary about one's weight or body shape) and that these same experiences are more impactful on women's self-perceptions. It is also possible that the valence of the experience is interacting with factors of the individual (e.g., body image) or situation (e.g., relationship with the objectifying perpetrator) to create unique responses to interpersonal objectification (Gervais, Allen, Riemer, & Gullickson, 2018).

Hypothesis 3: Self-objectification predicts goal pursuit. Engaging in more self-objectification was hypothesized to be associated with fewer STEM educational goals (Hypothesis 3a), but more feminine (Hypothesis 3b) and feminine educational goals (Hypothesis 3c), especially for young women high in conformity to feminine norms (Hypothesis 3d).

In support of Hypothesis 3a, higher levels of self-objectification reported in the moment during the EMA portion of the study by college women predicted a 2% decreased likelihood of having a STEM educational goal that day. Yet, college women who reported a higher average level of self-objectification across the two-week EMA portion of the study also reported more interest in STEM careers. The relation between self-objectification and STEM educational goals was not moderated by conformity to feminine norms (Hypothesis 3d).

Consistent with Hypothesis 3b, more self-objectification in a day as reported by college women during the EMA portion of the study was associated with an increased likelihood of reporting a feminine goal that day. Moreover, for women high in conformity to feminine norms, more self-objectification in a day was related to an increased likelihood of having a feminine goal that day (Hypothesis 3d).

Finally, in support of Hypothesis 3c, higher average levels of self-objectification reported across the two-week EMA portion of the study was positively correlated with having more feminine educational goals in total across the two weeks for college women. Contrary to expectations, daily levels of self-objectification were associated with marginally fewer feminine educational goals. Moreover, a cross-level interaction revealed that contrary to Hypothesis 3d, for girls high in conformity to feminine norms engaging in higher levels of self-objectification was associated with a decreased likelihood of having feminine educational goals. Intriguingly, the patterns of results for self-objectification predicting goals was not the same between samples.

Hypothesis 4: Moderated mediation model. Inconsistent with hypotheses, objectification experiences did not indirectly shape goal pursuit through self-objectification as moderated by objectification perceptions and conformity to feminine norms. Because more objectification was related to feminine norms for college women, this finding suggests that self-objectification is not a necessary precursor for objectification experiences to increase young women's feminine goals.

Given the restrictions on time available to collect data using the MetricWire app (i.e., extending the license for the app beyond 6 months was unreasonable due to the cost), fewer high school participants were sampled than the original aim of the study.

Although the repeated measure nature of the EMA surveys combats this issue using MLM analyses, the path analyses conducted were collapsed across the samples. Hence, the current findings did not distinguish the model as it applied to college versus high school participants, so a different pattern of effects may be present. Additionally, even the combined sample of all participants was smaller than is recommended for path analyses (i.e., 128 participants; Hayes, 2013), suggesting that results need to be interpreted with caution.

Taken together, the current work reveals that objectification plays a significant role in the lives of young women and teenage girls. The use of EMA methodology provides insight into the regularity of college women and high school girls' experiences of objectification, occurring once every two days and three times every four days respectively. While the proposed model was not entirely supported, experiences of objectification significantly shaped the way women and girls perceive themselves through a third person perspective, continuously awaiting visual evaluations from others. Moreover, the current work reveals that beyond appearance perceptions, experiences of objectification shaped college women's goal pursuit. Although objectification experiences were only directly associated with more feminine goals, and not fewer STEM educational goals, women's heightened self-objectification as a result of their interpersonal experiences were related to fewer STEM educational goals and more feminine goals. While these results did not extend to high school girls, girls reported significantly more feminine goals than their college peers; it is possible that the extent to which girls internalized feminine ideals is so pronounced that regardless of inter- and

intrapersonal messages they receive they pursue appropriate gendered goals, which interrupts their ability to prioritize goals in other domains.

Implications

Theoretical implications. The findings from the current work have significant implications for the literature on both objectification and goal pursuit. Feminist scholars have suggested that objectification is used to oppress women by creating and maintaining gender inequalities (Bartky, 1990; Connell, 1987; Kuhn, 1985; Stoltenberg, 1989). Other scholars have suggested that objectification is most likely to occur within environments that uphold traditional gender roles (Szymanski, Moffitt, & Carr, 2011). The findings in the current work align with these previous notions; college women's experiences of objectification appear to maintain gender oppression by implicating gendered expectations. Women's more frequent experiences of objectification in the past two years were unexpectedly correlated with more interest in pursuing a STEM career in the baseline survey measures. It is possible that women in these domains may be more attuned to the experiences of sexism around them. Yet, previous research on sexual harassment aimed at women pursuing masculine domains (Berdahl, 2007), suggests that women may have experienced more objectification as a result of being interested in stereotypically masculine domains, meaning objectification may have been used to maintain gender disparities within STEM domains. Beyond the implications these findings have on objectification theory, the current work also implies that beyond achievement and performance, discriminatory experiences can shape goal pursuit.

Importantly, the examination of the association between daily experiences of objectification and self-objectification revealed that the effect of objectification on

college women's self-objectification varied as a function of the individual. This finding falls in line with the suggestion put forth by objectification theory, "certainly not all women experience and respond to sexual objectification in the same way" (Fredrickson & Roberts, 1997, p. 174), and has important implications for how we consider the consequences of women's objectifying experiences. It is possible that factors of the objectification experiences are interacting with factors of the individual (e.g., body image) or situation (e.g., relationship with the objectifying perpetrator) to create unique responses to interpersonal objectification (Gervais et al., 2018). While the majority of the literature assumes interpersonal objectification inherently increases women's self-objectification, the current work suggests some women cope with these harassing experiences in manners other than increasing their body surveillance. Future research should further consider this possibility through intersectional research examining potential protective factors in the relation between interpersonal and consequential intrapersonal objectification. Moreover, the current work revealed that while high school girls reported more experiences of interpersonal objectification, high school girls and college women engaged in similar levels of body surveillance, but high school girls reported more feelings of body shame. This finding suggests that high school girls respond to interpersonal experiences of objectification not by taking agency over their appearance, but by internalizing the shame associated with not meeting beauty ideals.

Practical implications. Importantly, the current work does not suggest that pursuing feminine goals is inherently detrimental to young women. While it is possible for women to pursue feminine, STEM, and other various goals simultaneously, prioritization is a process of selecting one goal as taking precedence over another. As a

result, when young women are taught through culture to prioritize goals in accordance with their feminine gender role, they may abdicate the possibility of prioritizing other goals. Given the social and economic benefits that accompany careers within STEM, the associations between women's objectifying experiences and gendered goals further supports the notion that objectification oppresses women by subtly implying suitable goals for young women. If this notion is correct, experiences of objectification may have unfavorable consequences for young women's pursuit of other masculine goals beyond STEM. For instance, goals to pursue other stereotypically masculine careers (e.g., law, construction) or to develop other stereotypically masculine work skillsets (e.g., leadership, management) may be impacted by women's experiences of objectification.

Like other stereotypically masculine domains, STEM domains are commonly perceived as incongruent with feminine roles, including being communal (e.g., Barbercheck, 2001; Diekman et al., 2010) and being attractive. For example, Chien-Shiung Wu, a Chinese-American physicist who's work had historic implications for nuclear physics, once noted, "there is a misconception in America that women scientists are all dowdy spinsters" (1963). Beyond forming stereotypes about who works in STEM, research reveals that these perceptions have real consequences for STEM pursuit. For instance, a recent longitudinal study revealed that STEM attrition is high for women and men attempting to fulfill communal familial roles (Cech & Blair-Loy, 2019). This work paired with the current findings suggests that future work aiming to increase women's representation within STEM domains should focus on helping women learn the benefits of prioritizing goals that are in domains outside of appearance, romantic relationships, and housework. For instance, discourse around women's ability to "have it all" often

ignores the ways in which sexism permeates women's lives through both their interpersonal experiences (e.g., Sandberg, 2010) and their intrapersonal attitudes and beliefs. While work-life balance is a common concern among many women, the current work suggests that the conversation surrounding women's ability to "have it all" may need to change in order to highlight the ways in which their objectifying experiences with others may shape their perceptions of what having it all might mean.

Importantly, young women's goals were powerfully shaped by the self-objectification that resulted from sexual objectification. Recent polls reveal that young men and women perceive they can pursue any career they desire; yet, young women and girls continue to think they are primarily valued for their appearance over any other trait (Undem & Tang, Plan International, 2018). While the negative consequences of objectification imply that women should reject notions of their value being contingent upon their appearance alone, the characteristically benevolent nature of many experiences of objectification (e.g., appreciative sexualized gazing, complimentary commentary) paired with the restrictive and fleeting power associated with meeting cultural beauty expectations often leads women to internalize these third-person perspectives of themselves through self-objectification. Continuous evaluation based on their appearance teaches girls from an early age that their appearance, and not their competence, is valued. As a result, young women who internalize the notion that their self-worth is dependent upon their appearance prioritize feminine goals to reduce the likelihood of experiencing backlash for not being "feminine enough" (Berdahl, 2007) and to increase the likelihood of receiving positive feedback for being a "good woman." Intriguingly, more overt disrespectful and hostile instances of objectification (e.g., negative commentary about

one's body) may be have a silver lining for women. For women low in conformity to feminine norms, these experiences may be easily written off, and for women high in conformity to feminine norms these messages may communicate that feminine goals are unattainable opening the door for pursuit of other potentially more attainable goals.

A silver lining of the finding stressing the larger impact of self-objectification on goals relative to interpersonal objectification is that there may be potential to intervene in this process. While the perpetration of objectification can only be stopped by those who perceive women as sexual objects, there may be steps we can implement to reduce the adverse consequences of this exposure and experiences on women by intervening on self-objectification. For example, while the current work used EMA techniques to assess women's experiences and levels of self-objectification, future work could implement similar approaches to deliver repeated messages to women highlighting their non-appearance related characteristics (e.g., intellect, motivations, desires, competencies, personality). In the current work, participation in the study significantly reduced engagement in self-objectification over the two-week EMA portion of the study for both college women and high school girls. If surveys like the one used in the current study can diminish young women's self-objectification, interventions could rely on similarly structured EMA reminders to intervene in the effects of interpersonal objectification increasing intrapersonal self-objectification, setting the foundation for women to feel more confident in prioritizing any goal they desire, including non-feminine goals.

Limitations and Future Directions

Like all studies, the current work was not without limitations. A primary limitation of the current work was the relatively small and homogeneous sample. Due to

the total number of participants (especially in Study 2 with high school girls), future work with increased power is needed to test the reliability and robustness of the effects found in the present work. Moreover, the current work relied on a relatively homogeneous sample of young, white, middle-class, heterosexual, Midwestern participants. While this is an important limitation of the current work, this issue mirrors much of the previous research conducted to examine the tenants of objectification theory focus(see Moradi & Huang, 2008 for a review), focusing on a predominantly White, heterosexual, sample of young women. The limited sample size of diverse participants in the current work makes it impossible to determine whether the findings of these studies would generalize to women of various identities, but some previous work suggests there might be key differences in the experiences and consequences of objectification.

Notably, experiences of objectification and related self-objectification diverge for American women with various intersectional identities. For instance, through survey research Kozee and Tylka (2006) revealed that lesbian women report experiencing a similar number of objectification experiences as heterosexual women. Yet, lesbian women report more body surveillance and less disordered eating behaviors than heterosexual women, suggesting that the consequences of objectification experiences on self-objectification and related mental health outcomes varies as a function of women's sexual orientation. Regarding race, some research suggests that regardless of ethnicity self-objectification increases negative outcomes (e.g., decreased math performance) for women (Hebl et al., 2004), whereas other work suggests that the specific pathways in which self-objectification indirectly leads to negative consequences is differs for White and Black women (Buchanan, Fischer, Tokar, & Yoder, 2008). Beyond the relation

between experiencing interpersonal objectification and resulting intrapersonal self-objectification, if women's experiences of objectification communicate cultural expectations of beauty and gender roles, the way in which these experiences shape women's subsequent goals may depend upon their intersectional identities (Crenshaw, 1990). Future work should examine whether experiences of objectification have similar effects on goals for more diverse women in terms of age (e.g., middle school students, women in the workforce), socioeconomic status (e.g., women at community colleges, women at ivy league universities), and culture (e.g., cross-culturally, those who do not ascribe to traditional gender roles, lesbian and bisexual women).

Despite the ecological benefits of EMA data collection to gain insight into experiences as they occur in the moment and within their naturally occurring environment, the use of this methodology did result in a few important limitations that should be addressed in future research. Primarily, the self-reporting nature of this methodology had the potential to influence the ways in which young women were thinking of themselves and their experiences over time (Schwartz, 1999). For example, without questions about their goals, participants most likely still have a number of goals they are pursuing, but asking participants to become more conscious of their goals could have shaped the content of their current and subsequent goal pursuit (Fishbach & Ferguson, 2007). Moreover, retrospective bias was reduced through the use of multiple surveys throughout the day, yet there is still the possibility that anticipation of reporting experiences biased young women's perceptions of their in the moment experiences. For example, given the lingering effect of self-objectification on later self-objectification (Quinn, Kallen, & Cathey, 2006), repeated questions regarding the extent to which

participants were considering how they look to others could have led participants to engage in more self-objectification.

Alternatively, this prompted reflection on their experiences and self-perceptions could have led young women to engage in less self-objectification (as was true in the high school sample over the 14-day EMA portion of the study). Similarly, repeated questions about objectifying experiences could have increased participants' tendency to notice their experiences of objectification. For example, in a daily diary study examining experiences of sexism, participants reported that simply being in the study increased their sensitivity of noticing sexism in their everyday experiences (Swim et al., 2001). Finally, although participants were guided through the EMA survey and provided with examples of each of the objectifying experiences listed in the EMA survey, there is also a possibility that variability exists in the types of experiences participants identified and reported. For instance, even though the terms objectification and self-objectification were not used within the surveys, participants may have underreported more positive experiences because they perceived them as less sexist (Riemer, Chaudoir, & Earnshaw, 2014), and therefore less likely to fit into the categories listed.

The repeated measures nature of EMA also limits the amount of time participants can spend on each survey, ultimately limiting the number of questions participants can complete within the EMA survey. Greater contextual information regarding participants' engagement in self-objectification (e.g., are they experiencing positive or negative body sentiment) and objectification experiences (e.g., in what environment was objectification experienced; who the objectification was perpetrated by whether a romantic interest, friend, family member, or stranger) would illuminate potential moderators in the role of

objectification on goal pursuit. Moreover, because this work relied primarily on correlational analyses, it is impossible to identify the direction of the effects. Importantly, MLM analyses were conducted to examine the effect of daily experiences on goals and self-objectification a day later in attempts to examine causation; however, these analyses did not find support for causal connections. In my future analyses with this dataset, I intend to conduct more advanced analyses examining whether objectification earlier in the day causally affected self-objectification later that same day. Future work should expand on the identified relation between objectification and goal pursuit by experimentally manipulating experiences to test the direction of the relations as well as possible underlying mechanisms as proposed by the model (i.e., performance, agency, self-efficacy). Furthermore, the model tested in the current study suggests that young women's objectifying experiences influence goals; however, it is possible that objectifying experiences create a vicious circle. For example, increased self-objectification may increase feminine appearance goals, but feminine goals may also increase body surveillance and resulting self-objectification. If feminine goals increase self-objectification, young women's goals may be influenced by self-objectification not prompted by interpersonal objectifying experiences. Therefore, future work able to examine causal relationships should test the direction of the relation between feminine goals and self-objectification.

Conclusion

Women's pervasive experiences of objectification significantly impact their self-perceptions beyond their body image, extending to the goals they prioritize and pursue. With a better understanding of the relation between objectification and young women's

goals, interventions can be better designed to help women overcome the restrictive paths implicated to women through objectification. Importantly, adjusting the way in which we support women's pursuit of non-feminine goals may change women's representation within male-dominated domains. Changes in representation and stereotypes about appropriate goals may more generally change the way in which women think about their participation in male-dominated domains. For instance, promoting women's non-feminine goals may adjust women to consider themselves as Donna Strickland – a Nobel Peace Prize awardee for her scientific contributions to the physics of lasers in 2018 and only the third woman to earn this award, put it, "as a scientist, not a woman in science."

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Appendix A: Study advertisements

Participants Wanted!

Nebraska Lincoln

Project G.I.R.L. (Gaining Insight into Real Life)
is looking for **female UNL students** who **own a smartphone**
to share their experiences

EARN up to $60!

Phase 1: Tell us about your thoughts & experiences (in-lab)
Phase 2: Complete surveys everyday for 2 weeks using an app

For more information: contact Abbey at UNLprojectGIRL@gmail.com, (402)937-0907

Project GIRL Smartphone Study UNLprojectGIRL@gmail.com (402)937-0907
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Participants Wanted!

Nebraska Lincoln

Project G.I.R.L. (Gaining Insight into Real Life)
is looking for **female high school students** who **own a smartphone** to share their experiences in a research study

EARN up to $50

Phase 1: Tell us about your thoughts & experiences (1 hr. in-lab)
Phase 2: Complete multiple 2 minute surveys everyday
for 2 weeks using an app on your phone
Phase 3: Return to the lab for 20 min. survey & receive your $$

For more info: contact Abbey Riemer at UNLprojectGIRL@gmail.com, (402)937-0907

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Appendix B: Interpersonal Sexual Objectification Scale

(Kozee, Tylka, Augustus-Horvath, & Denchik, 2007)

Please think about how frequently you have experienced the following behaviors in the past year. If you did experience the behavior, how did it make you feel? Negative = bothersome, stressful, or unwelcome; positive = fun, flattering, or welcome.

1	2	3	4	5	6	7	8	9	10
Never	Rarely	Occasionally	Frequently	Almost always	Very negatively				Very positively

1. How often have you been whistled at while walking down a street?
2. How often have you noticed someone staring at your breasts when you were talking to them?
3. How often have you felt like or known that someone was evaluating your physical appearance?
4. How often have you felt that someone was staring at your body?
5. How often have you noticed someone leering at your body?
6. How often have you heard a rude, sexual remark made about your body?
7. How often have you been honked at when you were walking down the street?
8. How often have you seen someone stare at one or more of your body parts?
9. How often have you overheard inappropriate sexual comments made about your body?
10. To indicate you are paying attention, select 2 “Rarely” and 10 “very positive.”
11. How often have you noticed that someone was not listening to what you were saying, but instead gazing at your body or a body part?
12. How often have you heard someone make sexual comments or innuendos when noticing your body?
13. How often have you been touched or fondled against your will?
14. How often have you experienced sexual harassment (on the job, in school, etc.)?
15. How often has someone grabbed or pinched one of your private body areas against your will?
16. How often has someone made a degrading sexual gesture towards you?

Appendix C: Verbal Commentary on Physical Appearance Scale

(Herbozo & Thompson, 2006)

Sometimes people say things that affect how we feel and think about our appearance. The following is a list of comments that may have been made about you. Please read each item and rate how often you think you have been the recipient of such a comment or similar comment (using the scale provided, never to always).

If you rate an item as 1, then go directly to the next item. However, if you rate an item as 2 3, 4, or 5, please also rate how that comment made you feel (using the scale provided, very positive to very negative).
Rate the items based on your exposure to the following comments within the past **2 YEARS**.

1	2	3	4	5	1	2	3	4	5
Never		Sometimes		Always	Very Positively		Neutral		Very Negatively

1. Your outfit looks great on you.
2. You need to start watching what you eat.
3. You are pretty.
4. I wish I had a body like yours.
5. You've gained weight.
6. You are I great shape.
7. If you're paying attention, please select 1 "Never."
8. Don't you think you have eaten enough already?
9. You're looking kind of skinny.
10. Your facial skin looks good.
11. You shouldn't eat so late at night.
12. You have pretty eyes.
13. You need to start exercising to lose weight.
14. You have nice abs (abdominals).
15. Have you considered going on a diet?
16. You have a beautiful smile.
17. Your outfit makes you look fat.
18. I really like how those jeans fit you.
19. Are you sure you want to eat such fattening foods?
20. Have you gained weight?
21. Your hair looks really good.
22. You have a nice body.

Appendix D: Objectified Body Consciousness Scale

(McKinley & Hyde, 1996)

Please respond to the following items using a 1 (strongly disagree) to 6 (strongly agree) scale, with N/A being not applicable.

1	2	3	4	5	6	
Strongly disagree					Strongly agree	N/A

1. I rarely think about how I look.
2. I think it is more important my clothes are comfortable than whether they look good on me.
3. Please select 3 if you are paying attention.
4. I think more about how my body feels than how it looks.
5. I rarely compare how I look with how other people look.
6. During the day, I think about how I look many times.
7. I often think about whether the clothes I am wearing make me look good.
8. I rarely worry about how I look to other people.
9. I am more concerned with what my body can do that how it looks.
10. When I can't control my weight, I feel like there is something wrong with me.
11. I feel ashamed of myself when I haven't made the effort to look my best.
12. I feel like I must be a bad person when I don't look as good as I could.
13. I would be ashamed for people to know what I really weight.
14. I never worry that something is wrong with me when I am not exercising as much as I should.
15. When I'm not exercising enough, I worry if I am a good enough person.
16. Even when I can't control my weight, I think I'm an okay person.
17. When I'm not the size I think I should be, I feel ashamed.

Appendix E: Conformity to Feminine Norms Inventory

(Parent & Moradi, 2010)

Thinking about your own actions, feelings, and beliefs, please indicate how much you personally agree or disagree with each statement using the scale below. There are no right or wrong responses to the statements. You should give the response that most accurately describes your personal actions, feelings, and beliefs. It is best if you respond with your first impression when answering.

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

1. I would be happier if I was thinner.
2. It is important to keep your living space clean.
3. I spend more than 30 minutes a day doing my hair and make-up.
4. I tell everyone about my accomplishments.
5. I clean my home on a regular basis.
6. I feel attractive without make-up.
7. I believe that my friendships should be maintained at all costs.
8. I find children annoying.
9. I would feel guilty if I had a one-night stand.
10. When I succeed, I tell my friends about it.
11. Having a romantic relationship is essential in life.
12. I enjoy spending time making my living space look nice.
13. Being nice to others is extremely important.
14. I regularly wear make-up.
15. I don't go out of my way to keep in touch with friends.
16. Most people enjoy children more than I do.
17. I would like to lose a few pounds.
18. It is not necessary to be in a committed relationship to have sex.
19. I hate telling people about my accomplishments.
20. I get ready in the morning without looking in the mirror very much.
21. I would feel burdened if I had to maintain a lot of friendships.
22. I would feel comfortable have casual sex.
23. I make it a point to get together with my friends regularly.
24. I always downplay my achievements.
25. Being in a romantic relationship is important.
26. I don't care if my living space looks messy.
27. I never wear make-up.
28. I always try to make people feel special.
29. I am not afraid to tell people about my achievements.
30. My life plans do not rely on my having a romantic relationship.
31. I am always trying to lose weight.
32. I would only have sex with the person I love.
33. When I have a romantic relationship, I enjoy focusing my energies on it.
34. There is no point to cleaning because things will get dirty again.

35. I am not afraid to hurt people's feelings to get what I want.
36. Taking care of children is extremely fulfilling.
37. I would be perfectly happy with myself even if I gained weight.
38. If I were single, my life would be complete without a partner.
39. I rarely go out of my way to act nice.
40. I actively avoid children.
41. I am terrified of gaining weight.
42. I would only have sex if I was in a committed relationship like marriage.
43. I like being around children.
44. I don't feel guilty if I lose contact with a friend.
45. I would be ashamed if someone thought I was mean.

Appendix F: Domain Specific Hope Scale

(adapted from Shorey & Snyder, 2004)

Please think carefully about each of the following life areas before you respond to the items in each section. If a particular question does not apply to you right now, try to respond as you would if the question did fit your situation (for example: if you don't have a job, think of your last job). Using the 8-point scale below, place the number that best describes you in the blank before each item.

1	2	3	4	5	6	7	8
Definitely False	Mostly False	Somewhat False	Slightly False	Slightly True	Somewhat True	Mostly True	Definitely True

SOCIAL RELATIONSHIPS:
Please take a moment to think about your social life (not including romance). Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to make friends.
2. I actively pursue friendships.
3. I have many social goals.
4. I am motivated to make and maintain friendships.
5. I can think of specific ways to be included in social groups.
6. I enjoy the challenge of making new friends.
7. I know many strategies to meet new people.
8. Thinking about pursuing new friendships fills me with excitement.
9. My social goals are clear and well defined.

RELIGION/SPIRITUAL LIFE:
Please take a moment to think about your religious or spiritual life. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to reach my spiritual goals.
2. I actively pursue my spiritual or religious activities.
3. I have many spiritual goals.
4. I am motivated to practice my religion/spirituality.
5. I can think of specific ways to fulfill my important spiritual needs.
6. I choose spiritual goals that are challenging to me.
7. I know of many paths I can use to grow spiritually.
8. Thinking about pursuing my spiritual goals energizes me.
9. I know what I want to achieve in my spiritual/religious life.

SPORTS:
Please take a moment to think about your sports, athletic, and physical activities. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to become or remain engaged in interesting sports.
2. I actively pursue playing sports.

3. I have many sports-related goals.
4. I am motivated to play sports.
5. I can think of specific ways to improve my level of sports performance.
6. I set athletic goals that are challenging and may be difficult for me to achieve.
7. I know of many strategies I can use to maintain or improve my athletic performance.
8. When I think about my sports activities I feel energized.
9. My sports-related goals are clear and well defined.

ACADEMICS:
Please take a moment to think about your schooling or education. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to make good grades.
2. I actively pursue my educational goals.
3. I have many academic goals.
4. I am motivated to do well in school.
5. I can think of specific ways to do well in my classes.
6. I take classes that are challenging to me.
7. I know of many strategies I can use to succeed in my classes.
8. Thinking about pursuing my goals in school fills me with energy.
9. The educational goals I have set for myself are clear and well defined.

PHYSICAL HEALTH:
Please take a moment to think about your physical health. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to be physically healthy.
2. I actively engage in activities to promote my physical health.
3. I have many goals relating to my physical health.
4. I am motivated to keep my body healthy.
5. I can think of specific ways to keep my body healthy.
6. I set goals for my physical health that will be challenging for me to achieve.
7. I know of many strategies to maintain or improve my physical health.
8. I am energized when I think about engaging in activities that promote my physical health.
9. My goals for my physical health are clear and well defined.

ROMANTIC RELATIONSHIPS:
Please take a moment to think about your love life – your romantic relationships. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to establish romantic relationships or nurture my existing one.
2. I actively pursue spending time with my (potential) romantic partner.
3. I have many goals relating to my love life.
4. I am motivated to enhance my romantic relationships.

5. I can think of specific ways to keep someone I care about interested in me.
6. I choose romantic goals that are challenging for me.
7. I know of many strategies I can use to initiate or maintain romantic relationships.
8. I am invigorated when I think of setting up a date.
9. I know what I want to accomplish with my love life.

FAMILY LIFE:
Please take a moment to think about your family life – your family members. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to have fun with my family.
2. I actively work on maintaining my family relationships.
3. I have many goals for engaging in family activities.
4. I am motivated to nurture relationships with family members.
5. I can think of specific ways to keep my family's interactions health.
6. The goals I choose relating to my family are difficult ones.
7. I know of many strategies I can use to stay connected to my family.
8. I get energized when I think of participating in family activities.
9. The goals I have relating to me family are clear and well defined.

PSYCHOLOGICAL HEALTH:
Please take a moment to think about your psychological (mental) health. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to maintain or improve my psychological health.
2. I regularly do things to take care of or improve my mental well-being.
3. I have many goals relating to maintaining or improving my mental health.
4. I am motivated to nurture my mental health.
5. I can think of specific ways to keep myself feeling emotionally balanced.
6. The goals I set for my mental health are challenging.
7. I know of many strategies I can use to stay or become mentally healthy.
8. I get excited when I think of doing things that promote my psychological health.
9. The goals I have for maintaining or improving my mental health are clear and well defined.

WORK:
Please take a moment to think about your work or career – your job or job history. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to find a job or improve my performance at my existing job.
2. I expend a great deal of effort on my work-related goals.
3. I have many career or work-related goals.
4. I am motivated to perform my job well and to achieve what is expected of me.
5. I can think of specific ways to excel at my job.
6. The goals I choose at work or for my career are difficult and challenging.

7. I know of many strategies I can use to succeed at work.
8. I get invigorated when I think of doing my job well.
9. My career and work-related goals are clear and well defined. – add to academic

APPEARANCE:
Please take a moment to think about your appearance and looks. Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to maintain or improve my appearance.
2. I expend a great deal of effort on changing my appearance.
3. I have many appearance related goals.
4. I am motivated to enhance my appearance.
5. I can think of specific ways to make myself look more attractive.
6. The goals I set for maintaining and improving my appearance are difficult for me to achieve.
7. I know of many strategies to stay or increase my attractiveness.
8. I get excited when I look more attractive.
9. The goals I have for maintaining and improving my appearance are clear and well defined.

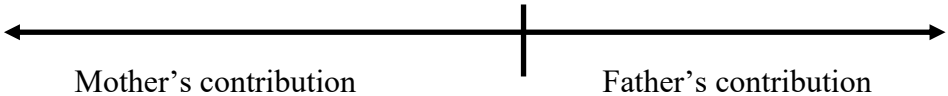
HOUSEHOLD CHORES:
Please take a moment to think about your chores around your house (e.g., chores and running errands). Once you have this area of your life in mind, read each item and insert the number (from 1 to 8) that best fits you.

1. I can think of many ways to maintain or improve my household appearance or functionality.
2. I expend a great deal of effort on doing housework, chores, and running errands.
3. I have many housework related goals.
4. I am motivated to keep my living space clean and functional.
5. I can think of specific ways to improve my living area.
6. The goals I set for maintaining and improving my domestic environment are difficult for me to achieve.
7. I know of many strategies to stay or increase the cleanliness and or functionality of my home.
8. I get excited when my household chores and or errands are done.
9. The goals I have for maintaining and improving my home are clear and well defined.

Appendix G: Demographics

1. What is your major?
2. What is your GPA?
3. What classes are you currently taking? (please list the full class title)
    a. What number are math classes?
    b. What number are physical science classes?
    c. What number are language classes?
    d. What number are social sciences classes?
    e. What number are art/humanity classes?
    f. What grade do you estimate you'll receive in each of those classes?
4. What occupation are you choosing to pursue?
5. How many years of education do you plan to pursue after high school (e.g., college, graduate school, professional school)?
6. What specific level of education do you plan to pursue?
    a. High school degree
    b. Certificate
    c. Apprenticeship
    d. Associate degree
    e. Bachelor's degree
    f. Master's degree
    g. Doctorate
7. How much money do you expect to make per year in your desired occupation?
8. Do you identify as a member of any of the following groups?
    a. Minority race (non-White)
    b. First generation college student
    c. Minority sexual orientation (non-heterosexual)
9. Have you ever been involved in a school program to increase your academic involvement?
10. Race/ethnicity
11. Age
12. Sexual Orientation
    a. Heterosexual
    b. Homosexual
    c. Bisexual
    d. Gay/lesbian
    e. Other: _____
13. Relationship Status
    a. Single
    b. Self-defined committed relationship
    c. Open relationship
    d. Married
    e. Engaged
    f. Divorced
    g. Other: _____
14. Parent Demographics
    a. Jobs (open-ended)

b. Please provide an estimate of your family's income in the past year:
    i. $10,000-20,000
    ii. $20,000-30,000
    iii. $30,000-60,000
    iv. $60,000-90,000
    v. $90,000-110,000
    vi. $110,000 and above
c. Education level:
    i. Some high school
    ii. High school
    iii. Some college
    iv. College
    v. Some graduate school
    vi. Graduate school
d. Think about how your parents divide the household chores. Please use the sliding scale below to indicate the percentage of chores each of your parents do.



Mother's contribution Father's contribution

Appendix H: EMA Survey Prompts

1. Since the last survey have you experienced any of the following (check all that apply)? For each of your experiences, please indicate how it made you feel. (adapted from Holland et al., 2016; Herbozo & Thompson, 2006; Kozee et al., 2007)
    - ☐ Commentary about your weight or body shape
    - ☐ Commentary about your general appearance
    - ☐ Catcalling, wolf-whistling, or car honking
    - ☐ Sexual remarks made about your body
    - ☐ Touching or fondling against your will
    - ☐ Body looked at sexually
    - ☐ Degrading sexual gesture

2. For each reported experience:
    a. How did [experience] make you feel?
    b. How strongly did [experience] impact you?

3. Since the last survey, have you been thinking about how you look to other people? (Holland et al., 2016)

0 100
not at all very much

4. Think of your most important shot-term goal in the present moment. Please use the checklist below to indicate which domain of your life this goal falls under. (adapted from Shorey & Snyder, 2004)
    - Social relationships
    - Religion/spiritual life
    - Sports
    - Math classes
    - Physical science classes
    - Social science classes
    - Technology classes
    - Language classes
    - Art or humanity classes
    - Physical health
    - Romantic relationships
    - Family life
    - Psychological health
    - Work
    - Appearance
    - Housework/chores
        i. Specifically, I intend to _____ by _____.
        ii. Is your goal to approach a positive outcome or avoid a negative outcome?

5. Regarding your goal, rate your agreement with the following statements using the scale below:

1	2	3	4	5	6	7	8
Definitely false	Mostly false	Somewhat false	Slightly false	Slightly true	Somewhat true	Mostly true	Definitely true

1. Right now, I can think many ways to achieve this goal.
2. This goal will be challenging for me to achieve.
3. I am expending a great deal of effort to work on this goal.
4. I can complete this goal.

Appendix I: Informed Consent Form for Study 1

University of Nebraska Lincoln

Department of Psychology

INFORMED CONSENT FORM

Project G.I.R.L. (Gaining Insight into Real Life experiences)

Purpose of the Research:
The purpose of this study is to examine your attitudes, goals, appearance commentary, and experiences, as a college student. This study will consist of two parts and take place over the course of two weeks. You were selected to participate because you are a female undergraduate student at UNL. We ask that you read this form. If you have any questions now or when the study is over, you may contact Dr. Sarah Gervais (sgervais2@unl.edu, 219 Burnett Hall) or Abigail Riemer (ariemer@huskers.unl.edu, 15 Burnett Hall). This study is being conducted by Abigail Riemer who is a graduate student, and Dr. Gervais who is an associate professor in the Department of Psychology at the University of Nebraska-Lincoln, Lincoln, NE 68588.

Procedures:
This study will consist of two parts. In part one, you will be asked to complete some questionnaires about your thoughts, attitudes, feelings, appearance commentary, and experiences while in the lab. You will also be asked to download the Metric Wire app to your smartphone.

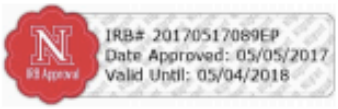
Part two of the study will take place over the course of the next two weeks. Throughout the day over the next fourteen days, you will be prompted multiple times a day to complete surveys based on your in the moment experiences.

Risks and/or Discomfort:
There are minimal risks associated with your agreement to participate in this research. However, this research, like much research in psychology, may contain some questions that you may find sensitive or personal. On occasion people experience mild distress completing psychological questionnaires like the ones in this study. Also, you may find participating boring or tedious. You may skip any questions without penalty. You may also withdraw from the study at any time without penalty. In the event of problems resulting from your participation in the study, psychological treatment is available at free or reduced cost at the UHC Counseling and Psychological Services Center, which can be reached at 402-472-5000. It is also available on a sliding fee scale at the UNL Counseling and School Psychology Clinic available at 402-472-1152, or the UNL Psychological Consultation Center available at 402-472-2351.

Benefits:
This study will allow you to experience psychological research. Beyond these benefits, this study adds to the knowledge about the psychology of people in general. If you so desire, you may also contact the researchers at the e-mail addresses listed above to obtain information about the results of the study.

338 Burnett Hall / P.O. 880308/ Lincoln, NE 68588-0308

(402) 472-3793/ FAX (402) 472-4637



Confidentiality:
The records in this study will be kept anonymous. That is, your responses will not be linked to your name or identity in any way. Your responses will be stored in a database on a password-protected computer in a locked office in the Psychology Department. All research records will be kept in a locked file in a locked office indefinitely after the study is completed. Only the researchers will have access to the records.

Compensation:
Your compensation will be contingent upon your compliance with the survey prompts. You have the opportunity to earn more money by completing more surveys.

Coming into the lab and completing 25% of the surveys = $15
Completing up to 50% of the surveys = $10 bonus
Completing 50-59% of the surveys = $20 bonus
Completing 60-69% of the surveys = $30 bonus
Completing 70-84% of the surveys = $35 bonus
Completing 85% or more of the surveys = $45 bonus

This means you can earn between $15 and $60 for participating in this study; however, if you fail to complete both the in-lab and at least 25% of the smartphone surveys you will not be compensated. If you receive over $50 ($50.01 or more), your social security number will need to be recorded at the end of the study to comply with Internal Revenue Services (IRS) record keeping requirements.

Opportunity to Ask Questions:
The researchers conducting this study are Dr. Sarah Gervais and Abigail Riemer. You may contact Dr. Sarah Gervais (sgervais2@unl.edu, 219 Burnett Hall) or Abigail Riemer (ariemer@huskers.unl.edu, 15 Burnett Hall) with any questions. If you have questions about your rights as a research participant not yet answered by the researchers, or concerns regarding the study and would like to talk to someone other than the researchers, contact the University of Nebraska-Lincoln Institutional Review Board; 402-472-6965.

Freedom to Withdraw:
Your decision whether or not to participate will not affect your current or future relations with the University of Nebraska-Lincoln, the Department of Psychology, or the researchers. If you decide to participate, you are free to withdraw at any time without affecting those relationships. If you feel that any questions are too embarrassing or personal, you may skip those items or stop completing the survey without penalty. Your decision whether or not to participate will not result in any loss of benefits to which you are otherwise entitled.

Consent, Right to Receive a Copy:
You are voluntarily making a decision whether or not to participate in this research study. Signing below certifies that you have decided to participate having read and understood the information presented.

_____ _____

Participant signature Date

Appendix J: Informed Assent for Study 2

University of Nebraska Lincoln

Department of Psychology

INFORMED CONSENT FORM

Project G.I.R.L. (Gaining Insight into Real Life experiences)

Purpose of the Research:
The purpose of this study is to examine your attitudes, goals, appearance commentary, and experiences, as a high school student. This study will consist of three parts and will take place over the course of two weeks. You were selected to participate because you are a female high school student who owns a smartphone. We ask that you read this form and let us know if you have any questions.

Procedures:
This study will consist of three parts, which could equal a total of up to five hours.

1. You will be asked to complete some surveys about your thoughts, attitudes, feelings, appearance commentary, and experiences. You will also be asked to download an app to your smartphone. This portion of the study will take about an hour.
2. Part two will take place over the next two weeks. Throughout the day over the next fourteen days, the app on your smartphone will prompt you about seven times a day to complete brief surveys (98 total) based on your in the moment experiences.
3. After the two weeks are over, you will return to the lab to complete a brief survey and pick up your payment.

Risks and/or Discomfort:
There are minimal risks associated with participating in this research. However, this research, like much research in psychology, may contain some questions that you may find sensitive or personal. You may skip any questions or drop out of the study at any time without penalty.

Benefits:
This study will allow you to experience psychological research. Beyond these benefits, this study adds to the knowledge about the psychology of people in general.

Confidentiality:
Any information we obtain about you during the study which could identify you will be kept strictly confidential. After completing the study, all of your identifying information will be removed from your data and thus, your responses will be anonymous and not linked to your name or identity in any way. Your responses will be stored in a database on a password-protected computer in a locked office in the Psychology Department and will only be seen by the research team. All data collected using the MetricWire app will remain confidential.

338 Burnett Hall / P.O. 880308/ Lincoln, NE 68588-0308

(402) 472-3793/ FAX (402) 472-4637

Compensation:
Your compensation will depend on the number of survey prompts you complete through your smartphone app. You will have the opportunity to earn more money by completing more surveys.

Coming into the lab and completing 25% (24) of the surveys = $15
Completing up to 50% (24-48) of the surveys = $5 bonus = $20 total
Completing 50-59% (49-57) of the surveys = $10 bonus = $25 total
Completing 60-69% (58-67) of the surveys = $15 bonus = $30 total
Completing 70-84% (68-82) of the surveys = $25 bonus = $40 total
Completing 85% (83-98) or more of the surveys = $35 bonus = $50 total

This means you can earn between $15 and $50 in cash for participating in this study; however, if you fail to complete both the in-lab and at least 25% of the smartphone surveys you will not be compensated. You will receive your money when you return after the two weeks.

Opportunity to Ask Questions:
You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may contact the investigators (Dr. Sarah Gervais sgervais2@unl.edu, 219 Burnett Hall or Abigail Riemer ariemer@huskers.unl.edu, 15 Burnett Hall). Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 to voice concerns about the research or if you have any questions about your rights as a research participant.

Freedom to Withdraw:
Participation in this study is voluntary. You can refuse to participate or withdraw at any time without receiving any penalty.

Consent, Right to Receive a Copy:
You are voluntarily making a decision whether or you want to participate in this research study. You may have a copy of this form to keep if you would like. Your signature below certifies that you have decided to participate having read and understood the information presented.

Name & Signature of Participant:

_____
(Name: Please print)

_____ _____
(Signature) Date

Appendix K: Informed Parental Consent for Study 2

University of Nebraska Lincoln

Department of Psychology

INFORMED CONSENT FORM

Project G.I.R.L. (Gaining Insight into Real Life experiences)

Purpose of the Research:

The purpose of this study is to examine your daughter's attitudes, goals, appearance commentary, and experiences, as a high school student. This study will consist of three parts and will take place over the course of two weeks. Your daughter was selected to participate because she is a female high school student in Lincoln who owns a smartphone. We ask that you read this form. If you have any questions now or when the study is over, you may contact Dr. Sarah Gervais (sgervais2@unl.edu, 219 Burnett Hall) or Abigail Riemer (ariemer@huskers.unl.edu, 15 Burnett Hall). This study is being conducted by Abigail Riemer who is a graduate student, and Dr. Gervais who is an associate professor in the Department of Psychology at the University of Nebraska-Lincoln, Lincoln, NE 68588.

Procedures:

This study will consist of three parts. In part one, your daughter will be asked to complete some questionnaires about her thoughts, attitudes, feelings, appearance commentary, and experiences while in the lab. She will also be asked to download the Metric Wire app to her smartphone. This portion of the study will take about an hour.

Part two of the study will take place over the course of the next two weeks. Throughout the day over the next fourteen days, your daughter will be prompted about seven times a day to complete brief surveys (98 total) based on her in the moment experiences using the app on her smartphone.

In part three of the study your daughter will return to the lab to complete a brief survey and pick up her compensation.

Risks and/or Discomfort:

There are minimal risks associated with your agreement for your daughter to participate in this research. However, this research, like much research in psychology, may contain some questions that she may find sensitive or personal. On occasion people experience mild distress completing psychological questionnaires like the ones in this study. Also, she may find participating boring or tedious. We have reminded her that she may skip any questions without penalty. She may also withdraw from the study at any time without penalty. In the event of problems resulting from her participation in the study, psychological treatment is available at free or reduced cost at the UHC Counseling and Psychological Services Center, which can be reached at 402-472-5000. It is also available on a sliding fee scale at the UNL Counseling and School Psychology Clinic available at 402-472-1152, or the UNL Psychological Consultation Center available at 402-472-2351.

Benefits:
This study will allow your daughter to experience psychological research. Beyond these benefits, this study adds to the knowledge about the psychology of people in general. If you or your daughter so desire, you may also contact the researchers at the e-mail addresses listed above to obtain information about the results of the study.

Confidentiality:
Your daughter's responses while completing this study will be confidential. After her completion of the study, all identifying information linked to her data will be removed. That is, after completing the study, your daughter's responses will not be linked to her name or identity in any way. Her responses will be stored in a database on a password-protected computer in a locked office in the Psychology Department. All research records will be kept in a locked file in a locked office indefinitely after the study is completed. Only the researchers will have access to the records. All data collected using the MetricWire app will remain confidential.

Compensation:
Your daughter's compensation will be contingent upon her compliance with the survey prompts. She will have the opportunity to earn more money by completing more surveys.

Coming into the lab and completing 25% (24) of the surveys ▬ $15
Completing up to 50% (24-48) of the surveys ▬ $5 bonus ▬ $20 total
Completing 50-59% (49-57) of the surveys ▬ $10 bonus ▬ $25 total
Completing 60-69% (58-67) of the surveys ▬ $15 bonus ▬ $30 total
Completing 70-84% (68-82) of the surveys ▬ $25 bonus ▬ $40 total
Completing 85% (83-98) or more of the surveys ▬ $35 bonus ▬ $50 total

This means your daughter can earn between $15 and $50 in cash for participating in this study; however, if you fail to complete both the in-lab and at least 25% of the smartphone surveys she will not be compensated. When your daughter returns to collect her compensation she will be required to complete a receipt for the University's accounting purposes.

Opportunity to Ask Questions:
You and your child may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may contact the investigators (Dr. Sarah Gervais sgervais2@unl.edu, 219 Burnett Hall or Abigail Riemer ariemer@huskers.unl.edu, 15 Burnett Hall). Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 to voice concerns about the research or if you have any questions about your child's rights as a research participant.

Freedom to Withdraw:
Participation in this study is voluntary. You and your child can refuse to participate or withdraw at any time without harming you or your child's and their relationship with the researchers, the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you or they are otherwise entitled.

Consent, Right to Receive a Copy:
You are voluntarily making a decision whether or not to allow your child to participate in this research study. Your child will also agree to be included within the study by providing assent.

Your signature below certifies that you have decided to allow them to participate having read and understood the information presented. You may obtain a copy of this parental/legal guardian consent form to keep.

Participant Feedback Survey:
The University of Nebraska-Lincoln wants to know about you or your child's research experience. This 14 question multiple-choice survey is anonymous; however, you can provide your contact information if you want someone to follow-up with you. This survey should be completed after your participation in this research. Please complete this optional survey at: http://bit.ly/UNLresearchfeedback.

Name of Child to be Included:

_____
(Name of Child: Please print)

Name & Signature of Parent/Legal Guardian:

_____
(Name of Parent/Legal Guardian: Please print)

_____ _____
(Signature of Parent/Legal Guardian) Date

Name and Phone number of investigators:

Abigail R. Riemer, MA	Principal Investigator	(414) 573-2229
Sarah J. Gervais, PhD	Secondary Investigator	(402) 472-3721

Supplemental Information

Exploratory Materials

Importantly, while the consideration of the role objectification plays in young women's STEM pursuit is a novel contribution of this work, this work is not the first to examine personal factors that shape STEM involvement. As a result, trait measures of self-efficacy, goal endorsement and affordance, feminist identity, gender-based rejection sensitivity, and a measure of influences on career choices were included in the trait measure survey. While these measures are not central to the proposed model, their inclusion allows for the examination of the influence of these traits on STEM educational goal pursuit compared to the proposed influence of objectification on STEM educational goal pursuit. Descriptive statistics and correlations can be found in the tables below.

Trait measures survey

Self-efficacy. Feelings of self-efficacy were assessed using the Self-efficacy Scale (Sherer et al., 1982). The general self-efficacy 17-item subscale was used. Participants were asked to rate their agreement with items (e.g., When I make plans, I am certain I can make them work; If something looks too complicated, I will not even bother to try it) using a 1 (*strongly disagree*) to 14 (*strongly agree*) scale. Responses were averaged, so that higher values indicate greater feelings of self-efficacy. Similar to the original validation of the scale ($\alpha = .86$), a reliability analysis revealed the measure had good reliability ($\alpha s = .89$).

Goal endorsement and affordance. Participants' perceptions of agentic and communal goals in terms of their endorsement and perceived goal affordance were also assessed (Diekman, Brown, Johnston, & Clark, 2010). In the measure of goal endorsement, participants were presented with 24 goals, and asked to rate how important each goal was to them personally on a 1 (not at all important) to 7 (extremely important) Likert-type scale. Half of the goals were agentic in nature (e.g., success, mastery, self-promotion) and the other half were communal (e.g., serving community, helping others, working with people). Responses were averaged for the agentic and communal goals, with high values indicating greater endorsement of agentic or communal goals.

Participants were then presented with careers in stereotypically masculine domains (SMC; lawyer, architect, dentist, physician), and stereotypically feminine domains (SFC; preschool or kindergarten teacher, HR manager, social worker, education administrator, registered nurse), and asked to rate the extent to which each career fulfilled 3 agentic (power, achievement, seeking new experiences or excitement) and 3 communal (affiliation, altruism, intimacy) goals using a 1 (not at all) to 7 (extremely) Likert-type scale. Responses were averaged for stereotypically masculine career affordance of agentic and communal goals, and stereotypically feminine career affordance of agentic and communal goals, with higher values indicating greater perceived affordance of agentic or communal goals in those career domains. Similar to reliability levels in the original use of this scale ($\alpha = .53$ - $.80$) these measures proved to be reliable ($\alpha = .85$ - $.93$).

Feminist identity. To assess the extent to which participants identified as a feminist, a modified version of the gender identity scale (adapted from Luhtanen & Crocker, 1992). The original version of this scale asks participants to indicate the extent to which they agree with statements about the importance of gender to their identity. In the current study, participants were asked to rate their agreement with four statements

about the importance of feminism to their identity (e.g., Overall, being a feminist has very little to do with how I feel about myself; Appendix J) using a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert scale. Responses were averaged so that higher scores indicate stronger identification as a feminist. This scale was highly reliable (α = .90).

Gender-based rejection sensitivity. The extent to which participants were sensitive to rejection due to their gender was assessed using the Gender-Based Rejection Sensitivity scale (GBRS; London, Downey, Romero-Canyas, Rattan, & Tyson, 2012). In this measure, participants are presented with 11 hypothetical scenarios in which gender rejection is possible, but the situation is ambiguous (e.g., Imagine that you have just completed the first round of interviews for a high paying corporate job. Your interviewer informs you that they will let you know about their decision after they have interviewer a few more applicants.). Participants' attunement to gender bias cues is assessed by asking about their expectations (e.g., I would expect to be hired) on a 1 (*very unlikely*) to 6 (*very likely*) scale, in addition to their anxiety about being rejected (e.g., How concerned/anxious would you be that you might not be hired because of your gender?) on a 1 (*very unconcerned*) to 6 (*very concerned*) scale. Expectation scores were reverse coded, multiplied by the degree of anxiety for the scenario, and averaged across the 11 scenarios, with higher scores indicating greater sensitivity to being rejected based on their gender. Consistent with the validation of this measure (α = .83), this scale demonstrated to be highly reliable (α = .92).

Career influences. To understand the way in which participants consider various influences when choosing their career path, participants were asked about career influences (Hall, Batts, Kauffmann, & Bosse, 2011). First, participants rated the extent to which 10 influences (e.g., friends, parents, media, degree options) factored into their career considerations using a 1 (*no influence*) to 5 (*very strong influence*). Then, participants rated the importance of 5 factors (e.g., having a teacher who encouraged them about a field) in developing their career interests using a 1 (*not important*) to 5 (*very important*) scale; higher scores indicate greater influence by that factor.

EMA Survey

So that participants were thinking specifically about their goal, they were asked to complete a measure of goal intentions by filling in the blanks within the statement, "I intend to _____ by _____" (Gollwitzer & Brandstatter, 1997). With their goal in mind, participants' hope comprised of goals, pathways, and agency, was assessed using one item from each of the DSHS-R subscales. Specifically, participants rated their agreement with the statements, "This goal will be challenging for me to achieve" (goals), "Right now, I can think of many ways to achieve this goal" (pathways), and "I am expending a great deal of effort to work on this goal" (agency) using the DSHS-R 8-item Likert scale ranging from *definitely false* to *definitely true* (adapted from Shorey & Snyder, 2004). Participants' hope for STEM, feminine education, and feminine goals was calculated by averaging perceived pathways, goals, and agency of STEM, feminine education, and feminine goals respectively. A larger hope score indicates greater hope in that domain, and a score of zero indicates no hope in that domain because no goal was reported in the respective domain. Finally, participants completed a single-item indicating perceived self-efficacy regarding their goal by rating agreement with the statement, "I can complete this goal" using the same 8-point Likert scale ranging from *definitely false*

to *definitely true* (constructed relying on Bandura's 2006 guide for measuring self-efficacy).

Supplemental Information References:

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents.* Greenwich, CT: Information age publishing.

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51,* 663-671. doi: 10.2466/pr0.1982.51.2.663

Baseline Descriptive Statistics

	College Sample		High School Sample	
	M	SD	M	SD
Self-Efficacy	9.89	2.01		
Agentic goal endorsement	5.56	0.89	5.36	0.73
Communal goal endorsement	5.58	0.92	5.48	0.71
SMC communal goal affordance	4.60	1.03	4.26	1.24
SMC agentic goal affordance	5.46	0.89	5.01	1.19
SFC communal goal affordance	4.81	1.15	4.48	1.39
SFC agentic goal affordance	4.66	1.09	4.77	1.23
Feminist identity	4.17	1.73	4.62	1.50
Gender-based rejection sensitivity	6.46	4.20	8.11	3.55

Correlations Between Gender Baseline Measures

	College Sample		High School Sample	
	Fem ID	GBRS	Fem ID	GBRS
Frequency of body evaluations	.26*	.10	.31*	-.01
Frequency of unwanted sexual advances	.17	.27*		
Interpersonal sexual objectification valence	-.34**	-.24*	-.24	-.28
Frequency of negative weight and shape comments	.15	.16	.26	.09
Frequency of positive weight and shape comments	.12	.04	.27	.11
Frequency of positive general appearance comments	.002	-.11	.33*	-.02
Appearance commentary valence	-.23*	-.24*	-.41**	-.38*
Objectified body consciousness	-.06	.04	-.04	.22
Self-objectification	-.23*	-.05	.25	.15
Conformity to feminine norms	-.19	-.08	-.35*	.04
Feminist identity		.38**		.14

Correlations between EMA variables

	1	2	3	4	5	6	7	8	9
1.Self-objectification		.18**	-.15**	.05**	.06**	-.12**	-.02	-.01	.04**
2.Quantity of objectification	.24**		-.04**	.02	.03**	-.02	-.04**	-.01	.05**
3.Goal pathways	-.10**	-.10**		-.28**	-.02	.58**	-.05**	-.03*	-.03*
4.Goals	.08**	-.01	-.21**		.56**	-.34**	.22**	.08**	-.08**
5.Goal agency	.05*	.004	-.01	.54**		-.05**	.18**	.08**	-.09**
6.Goal self-efficacy	-.13**	-.04*	.48**	-.35**	-.08**		-.11**	.03*	-.04**
7.STEM education goal	-.04	-.07**	-.21**	.18**	.09**	-.20**		-.19**	-.22**
8.Feminine goal	.001	.07**	.07**	-.10**	-.04	.08**	-.22**		-.14**
9.Feminine education goal	.03	.01	.01	.07**	.09**	-.01	-.18**	-.18**	

Note. Correlations above the diagonal are for college women, whereas correlations below the diagonal are for high school girls. * $p < .05$, ** $p < .01$, *** $p < .001$.

Correlations of goal-related trait variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Hope	1.Self-eff.		.15	.26*	.12	.00	-.03	-.13	-.08	-.05	.53**	.39**	.32**	.24*	.31**	.22*	.45**	.38**	.49**	.03	.29*
	2. Agentic goal endorse	-.20		.28**	.10	.14	.12	.15	.06	.08	.03	.25*	.004	.22*	.19	.21	.16	.15	.23*	.22*	.08
	3. Comm. goal endorse	.05	.24		.10	.17	.06	.17	.24*	.16	.18	.41**	.51**	.19	.18	.36**	.39**	.25*	.27*	.04	.37**
STEM	4. STEM agency aff.	.09	-.07	.08		.66**	.64**	.48**	.38**	.43**	.16	-.001	.08	.02	.18	.14	-.04	.22*	.06	-.12	.05
	5. STEM comm. aff.	.14	-.02	.18	.76**		.44**	.70**	.46**	.48**	.07	.05	.17	-.04	.08	.02	-.01	.22*	-.09	-.11	.11
SMC	6. Agency aff.	.26	-.04	.11	.80**	.65**		.66**	.50**	.43**	.13	-.08	-.04	.03	.04	.07	-.11	.09	-.03	-.11	.11
	7. Comm. aff.	.20	.03	.07	.72**	.78**	.80**		.52**	.62**	.03	.06	.05	.08	.04	.09	-.09	.15	-.14	-.09	.13
SFC	8. Agency aff.	.21	.09	.27	.67**	.51**	.71**	.51**		.71**	.05	.04	.23*	.06	.02	.02	.15	.22*	-.06	-.09	.27*
	9. Comm. aff.	.12	.15	.10	.68**	.60**	.62**	.82**	.49**		.08	.04	.10	.08	.02	.01	.09	.18	.02	-.14	.24*
	10. School	.24	.12	.27	.25	.37*	.40**	.43**	.05	.22		.30**	.18	.10	.25*	.08	.33**	.42**	.58**	-.06	.24*
	11. Social relations	.13	.30	.38*	.001	.08	-.001	.06	.35*	.04	.06		.48**	.35**	.27*	.23*	.44**	.38**	.25*	.21	.20
	12.Religion	.23	-.01	.12	.05	.12	.25	.26	.04	.07	.47**	-.18		.02	.09	.21	.25*	.33**	.14	.10	.20
	13. Sports	.32*	-.12	-.09	-.18	-.08	-.06	.02	.01	.04	-.17	.17	.19		.53**	.34**	.41**	.23*	.30**	.03	.28*
	14. Health	.38*	.24	.16	-.002	.14	.10	.29	.08	.29	.13	.23	.37*	.56**		.23*	.32**	.51**	.39**	.10	.34**
	15.Romance	.38*	.15	.30	-.10	-.01	-.03	-.09	.10	-.08	.17	.34*	.08	-.03	.20		.37**	.26*	.25*	.16	.29*
	16. Family	.23	.30	.31	-.04	.31*	.13	.15	-.07	-.01	.49**	.09	.24	-.08	.15	.12		.31**	.37**	.17	.41**
	17.Psycho. health	.13	.47**	.26	.25	.29	.34*	.32*	.41**	.28	.46**	.44**	.23	-.09	.36*	.38*	.24		.37**	.23*	.48**
	18. Work	.23	-.01	.12	.05	.12	.25	.26	.04	.07	.47**	-.18	1.00**	.19	.37*	.08	.24	.23		.20	.36**
	19. Appearance	-.23	.57**	.12	.13	.09	.10	.17	.19	.25	.15	.48**	-.002	.14	.31*	-.01	.15	.47**	-.002		.311
	20. Chores	.11	.53**	.15	-.05	.09	-.10	.07	-.07	.03	.36*	.31	.15	-.01	.38*	.26	.35*	.37*	.15	.36*	

Note. Correlations above the diagonal are for college women, whereas correlations below the diagonal are for high school girls. * $p < .05$, ** $p < .01$, *** $p < .001$.